

# Model Engineer 20p

DECEMBER 1973

MAP

HOBBY MAGAZINE

EXTRA + CHRISTMAS EXTRA + CHRISTMAS EXTRA +



GUIDE + EXHIBITION SOUVENIR HANDBOOK & GUIDE

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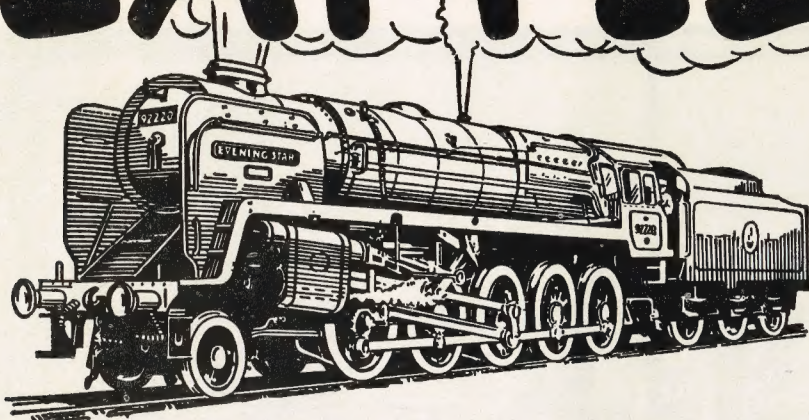
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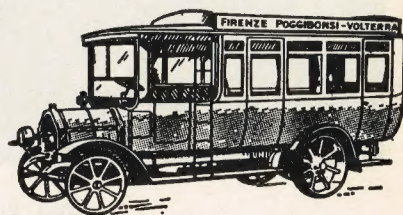
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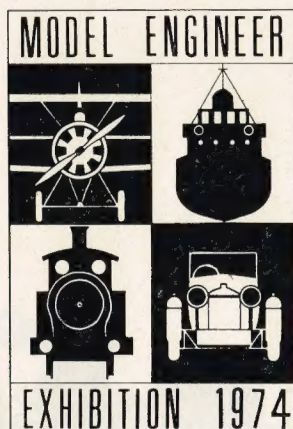
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# Christmas Extra Souvenir Handbook and Guide



Hours of opening:  
Daily 10 a.m. - 9 p.m.

(January 12th: 10 a.m. - 7 p.m.)

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## On the Cover ...

Scale model artillery pieces epitomize the rapidly growing popularity of the military modelling aspect of model engineering; in the foreground, an 8 pdr American Civil War field artillery piece (left) and the 10 pdr Barrott rifled cannon both assembled from white metal cast kits in 1/16th scale and loaned for photographic purposes by G.S.N. (Replicas) of London. In the background, a kit by Italian Pocher in the same scale for the Krupps 75 mm field gun.

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**13-35 Bridge Street,  
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## MODEL ENGINEER EXHIBITION

SEYMOUR HALL, LONDON W.1.

1st January - 12th January 1974

(Not Sunday)

SPONSORED BY MODEL ENGINEER, MODEL RAILWAYS, AERO-MODELLER, MODEL BOATS, RADIO CONTROL MODELS AND ELECTRONICS, SCALE MODELS, WOODWORKER, MILITARY MODELLING, GEM CRAFT

## THE EVER-GROWING BAND OF ENTHUSIASTS . . .

Our annual Christmas Extra edition of MODEL ENGINEER aims at a rather different audience from our regular readers. It is in effect an open house number where all the various model-making groups for whom we cater can have a say on what they have to offer, what they have done or hope to do. As such it is very much a newcomers' issue with the goods laid out as attractively as possible and described in the simplest possible way. At the Christmas season we hope many readers will be giving presents to nephews, sons, brothers, even to themselves, be it whispered, and starting many of them off on a lifetime's happy and rewarding leisure occupation. In the same way, the second object of this special issue is achieved in advertising our annual MODEL ENGINEER EXHIBITION and taking the visitor, actual and potential, round the exhibits and trade stands. Here again, we hope many new minds may be enthused by the prospect before them.

This year's exhibition, the seventh presented in M.A.P. hands, and 43rd in all, is also noteworthy in that it gives the Society of Model and Experimental Engineers an opportunity of celebrating in public the 75th anniversary of their foundation in 1898. The SMEE has always been intimately connected with the MODEL ENGINEER, their South London Headquarters being named "Marshall House" in honour of the late Percival Marshall who in his turn founded the magazine in that selfsame year and was forever associated with the society. We welcome the chance of publishing some highlights from their eventful history.

Even in the past decade there have been enormous changes in public attitudes to model making, in the amount of leisure available, and in the nature of models commanding interest and dedication. We have seen the rise of electric model car racing to be a challenger to the small scenic model railway and its equally swift descent to far less ambitious levels, whilst model railways have leaped back into favour as never before. Not only have the familiar indoor layouts commanded ever-increasing support, but the "real" miniature steam locomotive powered by live steam has achieved a fantastic place in the model engineer's esteem. Where a few years ago 3½ in. gauge was considered the height of ambition, today the larger 5 in. gauge is sweeping into increasing prominence as the "normal" live steam size, with the 7½ in., ground level size, only held back by its greater weight and space requirements from a challenge of its own.

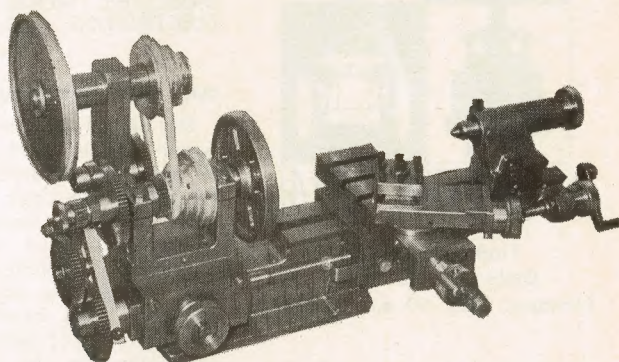
In the electronics field radio controlled models of aircraft, boats and cars have attained an almost unbelievable level of reliability, where performance is high enough to allow the builder-operator to concentrate on ever more ambitious productions. Scale models of every kind delight the eye and bring back nostalgic memories of other days. Alas we cannot fly radio controlled aircraft at the

*Continued on Page 29*

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A Quarterly Journal of Ships  
and Ship Models



## model Shipwright

**Model Shipwright** at the Model Engineering Exhibition is celebrating the completion of the replica of the 'Golden Hinde' with the **Shipwright** publication of 'Modelling the Golden Hinde'. As this is designed to give the modeller all he needs by way of information and plans we have given a modelmaker a copy of the book from which he will be constructing a model of Drake's ship, during the course of the exhibition. A team of experienced modellers will be on the stand to answer questions, discuss problems or impart information, and there will be daily demonstrations of modelling techniques, and a permanent display of gadgets, plans, books and models at Stand Number 10.

**Model Shipwright** now in its second year, has already earned the reputation of being a truly international ship modelling forum. The current volume includes articles on tools, miniature carving, The Prisoner of war model, warship fittings and timber for modellers, each illustrated with plans, drawings and photographs, some in colour. Besides these articles by distinguished world-wide contributors, the regular features of reviews and news have been retained in the expanded 128 large format (9" by 7½") pages, still bound in the universally approved hard covers, without any increase in price.

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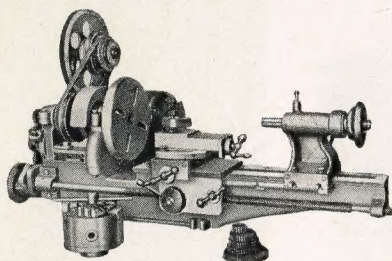
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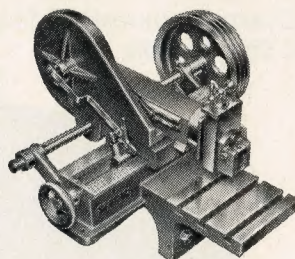
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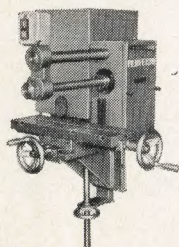
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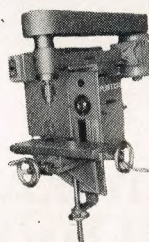
3 1/2" x 16" B.G.S.C. CENTRE LATHE



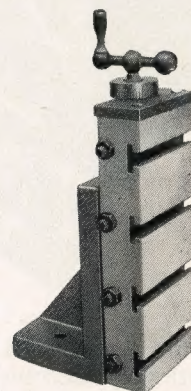
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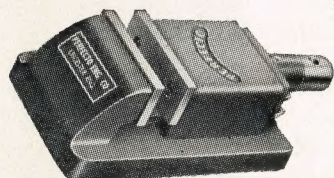
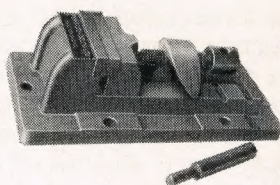
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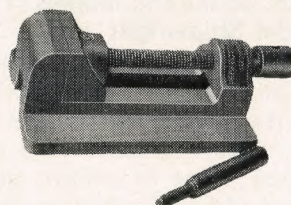


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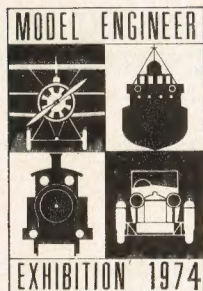
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# What you will be seeing at the Model Engineer Exhibition

## 75 YEARS YOUNG...

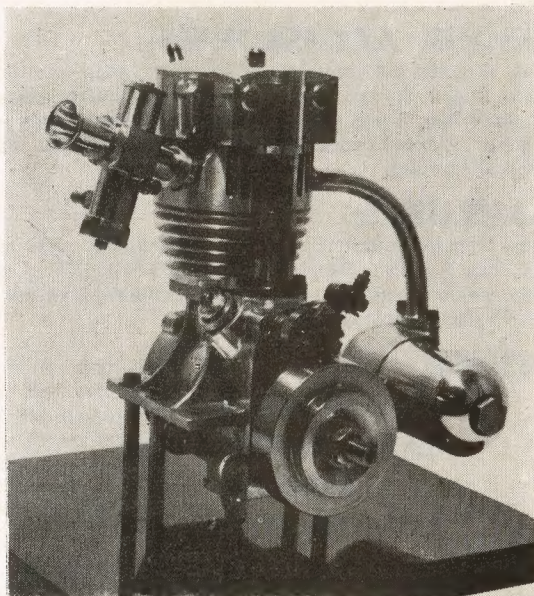
**PRIDE OF PLACE** must go this year to the celebratory display that the Society of Model and Experimental Engineers are providing in honour of their 75th anniversary. Inaugural meeting, to be exact, was November 2nd 1898! Brighton Corporation have very kindly lent their centrepiece, Dr. Bradbury Winter's 'Como' locomotive, whilst other splendid models built during the society's eventful existence are there to provide an adequate and varied background. Many of the models will be running under compressed air throughout the show. Just across from the model display will be found the very active S.M.E.E. Workshop where, in addition to lathe operations, there will be demonstrations of the society's machine for measuring draw-bar pull of a locomotive, and a swinging field type Dynamometer for testing i.c. engines.

Adjoining the workshop will be the steaming bay of the passenger carrying railway which to many—both old and young—is the main attraction of the exhibition. Once again Mr. Bill Carter will be in charge of operations and will be running his gold medal winning Atlantic—which runs as well as it looks! A plethora of locomotives will be in steam during the eleven days including visiting engines from the Bristol club and finalists in the L.B.S.C. Memorial Trophy.

This too will be the second year of the Westbury Memorial Trophy presented by the society for the best exhibit displaying either originality and soundness in a prime mover or working plant in a marine craft, or fidelity to prototype of a working i.c. model engine, a worthy way of keeping alive the memory of Edgar T.

### THE MODELS

The model entries year by year are our ever recurring miracle! The same but always different . . . it is truly remarkable how many changes can be rung on the theme of steam locomotives, traction engines, stationary engines, boats, ships, yachts, workshop accessories. It looks like being a marine year with 45 entries in power driven boats and nearly 30 sailing ships. But then there are over three dozen steam locomotives without counting the numerous loan exhibits. . . . Meanwhile our ever-growing militaria classes will undoubtedly achieve highest number of entries if not the greatest bulk! Our favourite clock corner seems likely to be well filled with interesting new work. Aircraft again have staged a comeback, so that, all in all, we have had quite a problem fitting them all in the space available.



*Modified 10 cc O.H.V. Dolphin 4-stroke petrol engine built by N. W. B. Portlock of Hammersmith.*

### THE BOATING MARINA

A pool one hundred feet long by thirty feet wide or thereabouts provides ample scope for some very exciting radio controlled boating. Demonstrations by enthusiasts and by the trade will take place daily at times to be announced. In the past we have seen all kinds of models on the water from a radio-controlled swan to rowing boats and ships of war. Readers who have r/c craft that they would like to try out on the water or clubs who wish to put on a combined operation have still time to get in touch and fix a day and time. Evenings will usually be devoted to club activities organised by the M.P.B.A.

### FLYING CIRCLE . . .

Our electric powered model aircraft have become an immensely popular aspect of the annual exhibition, perhaps because visitors can watch them sitting comfortably in the gallery with their sandwiches! Be that as it may, each year brings some new advance in the "electric art" but never quite so much that we do not feel there is still a new achievement in the offing. We still await a really polished wingover, and then on to the loop, whilst multi-plane flying can also be extended to more

realistic dogfights. Much of the action will be provided by our good friends of the Grantham, Luton and Cambridge model clubs who have specialised in this form of flying. Once again we would remind would-be flyers that they will be welcome with their planes throughout the show, but time and effort will be saved if they first telephone our Hemel Hempstead Office (0442-2501) and ask for Mr. Peter Richardson who will give them information on line attachment and wire polarity, etc. We hope to see some new stars!

### THE MILITARY SIDE

A really record entry in the military classes this year, so much so indeed, that we shall be showing the glass cased dioramas in the Committee Room on the first floor, near the Balcony Cafe. Smaller figures will be on show in the Lecture Hall as usual. Here too will be found the Military Games Area under the cheerful Generalship of Hugh Walters and his Paragon Wargamers, Group. Battle will be joined almost continuously with visiting wargamers and the resident unit, covering ancient, modern and periods in between. Merit awards will be made for the best games presentations by groups in action during the show.

British Model Soldier Society and International Plastic Model Society stands will also be in the Lecture Hall with staff in attendance to provide advice and information.

### ON THE STAGE

Stands here will be devoted to *Woodworker* and to craft exhibits plus our latest development *Gem Craft*. Editor Evelyn Barrett will be in attendance during the exhibition to talk about this new MAP magazine and its objects and interests.

### REFRESHMENTS

Ground Floor Restaurant provides lunch and evening meals. The Bar is licensed and open all day. The Balcony Cafe, overlooking the Main Hall offers soft drinks, both hot and cold, snacks and sandwiches.

### DIORAMAS

The larger military dioramas, many in glass cases as entered, will be displayed in the Committee Room, which is on the first floor, just behind the Balcony Cafe. Adequate direction arrows should ensure that this very attractive display is not overlooked.

### TRAMS ARE HERE AGAIN....

After two seasons as working displays at our Model Railways Exhibition, and a final year there with a static display, The Tramway and Light Railway Society will once again be providing a working layout. This is a most ambitious departure in

display, since we are asking our show fitters to build out over the gallery to make a platform for the club operators. This means also, that for the very first time, we shall be having both of the upstairs galleries in active use!

### GALLERIES

Offer several hundred seats where those with packed lunches can sit comfortably and enjoy them whilst watching activities in the main hall below. Here too is shown Commander Guffick's Boys' Exhibition of model ships, nearly all made by youngsters, often as their very first efforts—providing a glimpse of what can be done with young enthusiasts with sympathetic and skilled guidance.

### CLOAKROOM & TOILETS

Will be found in the basement; stairs lead down from either side of the main entrance lobby. The halls get quite hot and it is a very sound idea to remove topcoats.

### OUR COMMISSIONAIRES

Our commissioners serve a most important role. Please help by following any requests they may make in the matter of crowd marshalling. Attendance naturally peaks at the weekend so that some queueing may be necessary. Those who can make their visits in the week will have a more comfortable time. It is also possible to order tickets by post when you may make a small saving and be able to go straight in.

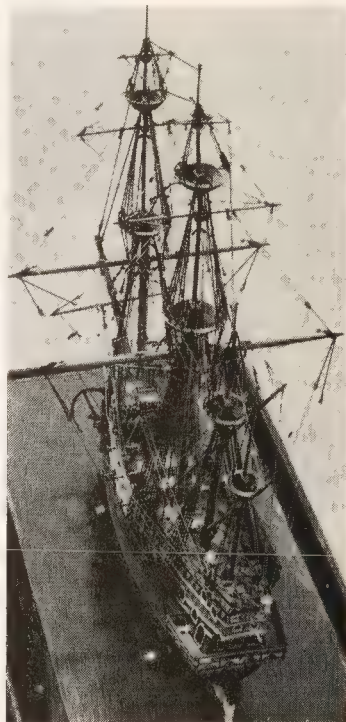
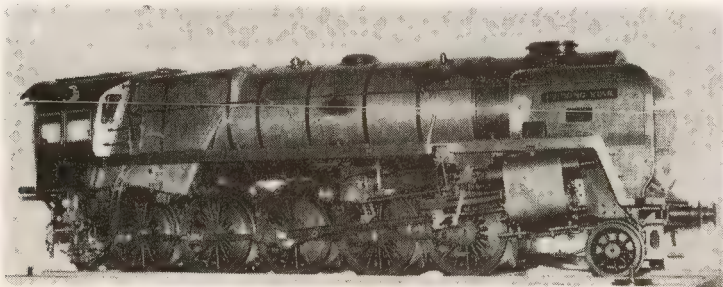
### PHOTOGRAPHY

Please take as many pictures as you wish! We welcome photographers. If you use flash please warn nearby onlookers. Our stewards will be happy to assist you in setting up pictures.

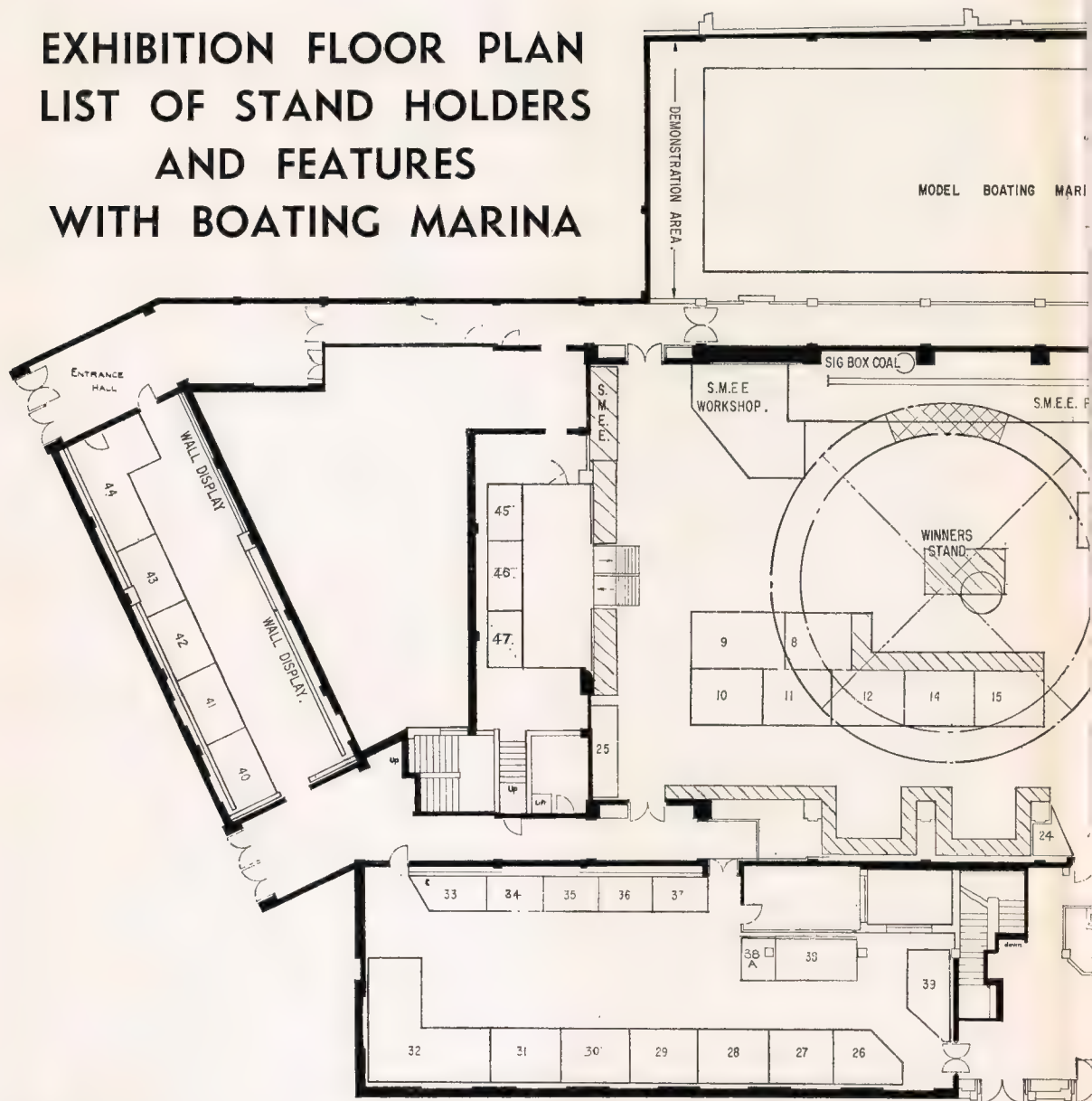
*Mr. F. R. Allen's model of the Revenge—one of the larger ship models which make such a truly elegant display.*

*Splendid 5in. gauge model of B.R. Class 9F Evening Star, last B.R. steam design, built by Mr. E. Lowe of Rotherham and valued at £5,000.*

*Photo: C. W. Hepworth.*



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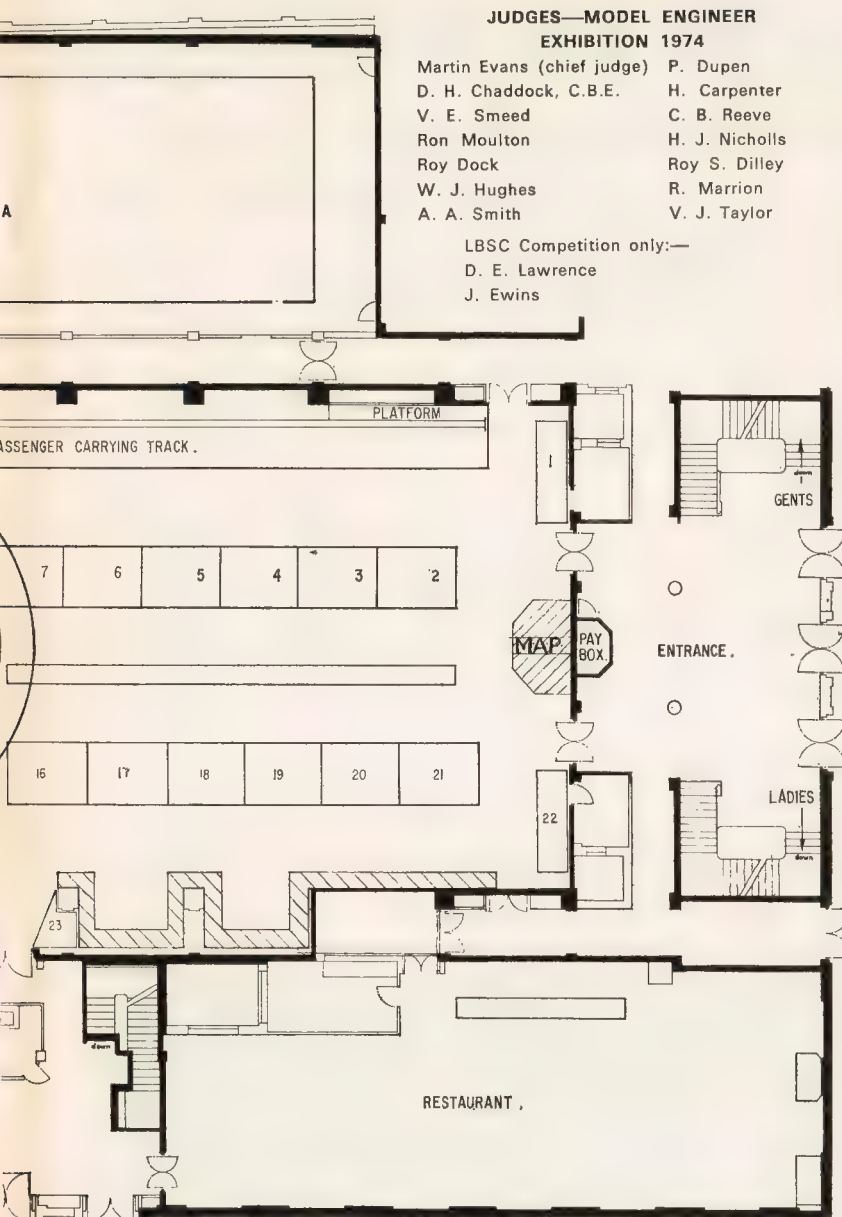
## ON THE STAGE

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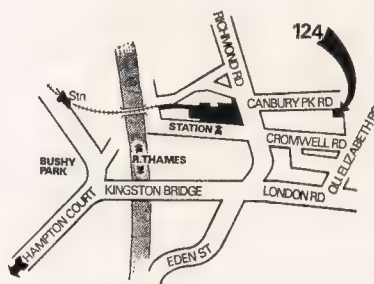
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*Right: A Fall Meet in Los Angeles: Bill Webb's 1½ in scale "Pacific" in action.*

*Below: Ken Swan driving his 7¼ in. gauge 0-4-2 "Bridget."*



**Martins Evans weighs the pros and cons of building bigger locomotives**

## Large Scale Model Locomotives

OVER THE LAST two or three years, there has been a distinct trend towards the building of larger model steam locomotives—those for 7¼ in. gauge and above.

For many years, it has been generally accepted that the 5 in. gauge model was the practical limit for the average model engineer with modest equipment, which was generally centred round a 3 in. or 3½ in. screw-cutting lathe, plus the usual hand tools. But a new trend in model locomotive building has now arrived.

Most model engineers would agree that the heaviest parts of a model steam locomotive which require machining either by lathe or milling machine are the cylinders and the driving and coupled wheels. Thus a driving wheel for a 5 in. gauge express passenger locomotive, which averages about 7 in. diameter over the tread, can just be accommodated in the gap bed of the typical model engineer's 3 in. or 3½ in. centre lathe. An inside cylinder block for a 5 in. gauge engine is rather heavy to swing on the faceplate of a 3½ in. lathe, but it can be bolted to the carriage or cross-slide and machined with fly-cutters and boring bars.

It thus follows that if the enthusiast wants to build a 7¼ in. gauge or larger scale express loco-

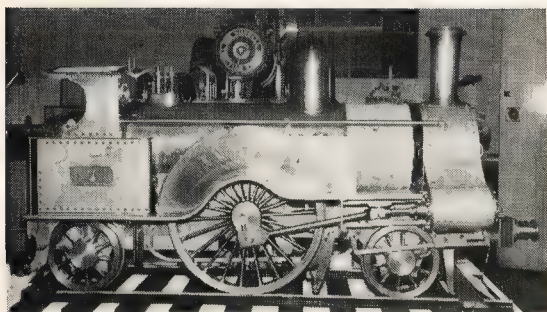
motive, he will have to purchase a larger machine, unless he is in the happy position of being able to use a larger lathe belonging to his model engineering society or to a nearby technical college. But what about a small shunting engine, or one of the vast numbers of narrow-gauge 'contractors' engines? These generally had driving and coupled wheels only 3 ft. to 4 ft. 8 in. diameter—which at 1½ in. scale work out at 4½ in. to 7 in. diameter. No great problem here. As for the cylinders, although most 'main-line' shunting and goods engines in this country had inside cylinders, there were a few with outside cylinders, and the great majority of small tank engines for industrial purposes had outside cylinders too, and a single outside slide-valve cylinder block is not a fearsome thing to machine, even on a 3½ in. centre lathe, in fact it is no heavier than the two-inside cylinder block for 5 in. gauge.

To sum up then; if the builder can be satisfied with a small tank engine, he will be sufficiently well equipped with his existing 'model engineer size' workshop; but if he insists on a larger locomotive, perhaps a mixed-traffic 4-6-0 or an express type, he will have to seek outside assistance or let himself in for considerable expense in re-equipping his workshop.

I can hear someone say 'what about the boiler?' Strange to say, the boiler of the small 7¼ in. gauge tank locomotive does not present any special problem, in fact it may turn out a lighter and easier job than that 5 in. gauge 'Pacific' boiler. This can be explained from the fact that however small the type of engine chosen for the 7¼ in. gauge, the firebox will be very much wider—about 2 inches wider in fact—and this means that the task of fitting the multitude of small stays between the inner and outer firebox wrappers and between the tubeplate and throatplate—involving some dexterous handwork—will be made much easier.

Talking about boilers for small tank engines—I am often asked whether these, for 7¼ in. or larger gauges, should be fitted with superheating equipment. Now I am aware that practically all small shunting and industrial tank engines in 'full-size'





Left: A 7 1/4 in. gauge L.N.W.R. "Lady of the Lake" (unfinished) by H. M. Sullivan.

used saturated steam, and also that to make a model locomotive with a superheater is rather more work and somewhat more difficult than building a 'saturated' engine; nevertheless I believe that superheating in the model is well worth while. Model locomotives seem to suffer rather more from 'priming' than their full-size counterparts, and cylinder condensation is often a problem too. Apart from that, the superheated engine is far more lively on the track, that is of course if the steam really is being superheated (I regret to say that some model locomotive superheaters are little more than steam dryers!).

Now what about the cost of all this? I will not pretend that a 7 1/4 in. or larger gauge locomotive is not a great deal more expensive to build, type for type, than a 5 in. or 3 1/2 in. gauger. But once again, if we compare the cost of building a little 0-4-0 tank for 7 1/4 in. or even for 9 1/2 in. gauge, with a 'Pacific' for 5 in. gauge, there is little in it.

What are the advantages of the larger gauges? First and foremost is the ability to lay the track at ground level; which at once opens up the prospect of points and crossings, more realistic stations, tunnels, signal boxes, water towers, and so forth. I know that there are a few ground level tracks which are for 3 1/2 in. and 5 in. gauges only, but these can hardly be regarded as a practical proposition, especially for the older driver, as so much stooping is involved. Apart from this, the stability of the rolling stock on a ground level track of a gauge less than 7 1/4 in. is somewhat doubtful, to say the least.

As anyone who has tried his hand at it will agree, the laying of a ground level railway is great fun, even if rather hard work! Of course this will depend greatly on the terrain; while a hilly site means much harder work in levelling the track-bed, it does provide the opportunity for really realistic tunnels and embankments, not to mention a stiff bank to test the locomotive's hill-climbing powers—but don't make any gradient steeper than about 1 in 75!

When preparing the track-bed, the question of proper drainage must not be forgotten. The rails cannot be laid direct on the soil or the grass; proper ballasting is essential, and if the ground is inclined to drain badly, adequate drainage must be provided, so that rain water can get away quickly, rather than lie between the sleepers and cause rotting, and at the same time cause the line to subside. Heavy section aluminium flat-bottomed rails are often used, but flat black mild steel about

1/2 in. wide and 1 in. or 1 1/4 in. deep makes a good substitute if kept well painted (these sizes for 7 1/4 in. gauge, larger gauges in proportion).

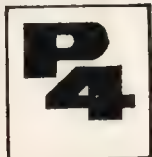
While the flat-bottomed rail can be spiked down to wooden sleepers, the flat steel bar rail will have to be dealt with in a different way. The usual procedure is to make up tubular steel spacers, equal to the rail gauge, drill the rail at suitable intervals and insert studs or rods threaded at each end, so that the rails can be firmly bolted together at the right spacing. The tubular spacers can then be held down at intervals by simple hook-shaped clamps.

Returning now to the question of rolling stock, the passenger cars for the ground level line will be quite different from those built for raised railways. On the latter, the aim is always to seat the passenger as low as possible, so that 'well' wagons, preferably mounted on bogies, are generally favoured. On 7 1/4 in. or 9 1/2 in. lines, however, the passenger cars may be made more like the full-size article. With a little 'artist's licence', the cars can be made rather more than twice the rail gauge wide, so that even a 7 1/4 in. gauge goods wagon or passenger coach becomes a practical proposition. While 4-wheelers are feasible, bogie vehicles are much to be preferred, being smoother running, especially round curves and over points and crossings, and more stable than the shorter vehicles.

Summing up, it will be seen that provided the type of locomotive contemplated is a small one, preferably with small diameter wheels and a short wheelbase and with outside cylinders, no special snags will be encountered if the enthusiast wishes to venture into the world of the larger gauges, while the cost of the locomotive and rolling stock need not be appreciably more. A final thought: if the builder decides that a larger lathe is really needed, there is no need for him to launch out with a modern all-g geared industrial type of machine, at vast expense. With a little searching around, it should be possible to acquire a sound 6 in. or 7 in. centre lathe that is no longer required by the local engineering works (through perhaps being replaced by the latest thing in numerical-control or copy-turning technique) and perhaps, with a little luck, at quite a modest figure.



Right: A 2 in. scale, 7 1/4 in. gauge industrial type locomotive by H. C. Nicholls of Muswell Hill.



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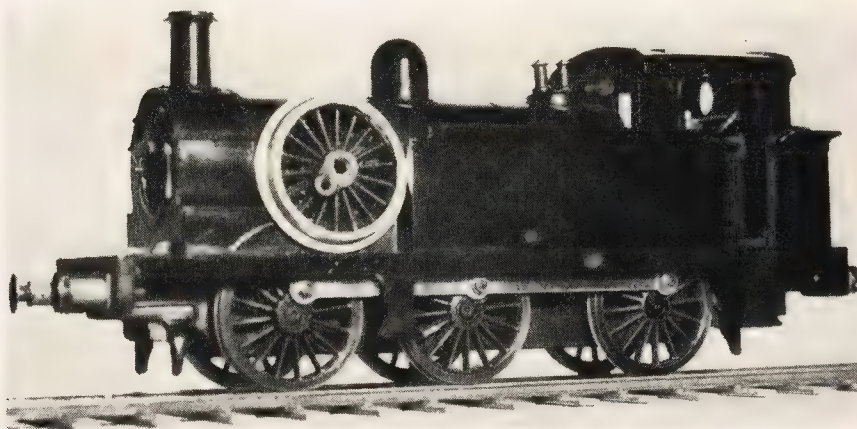
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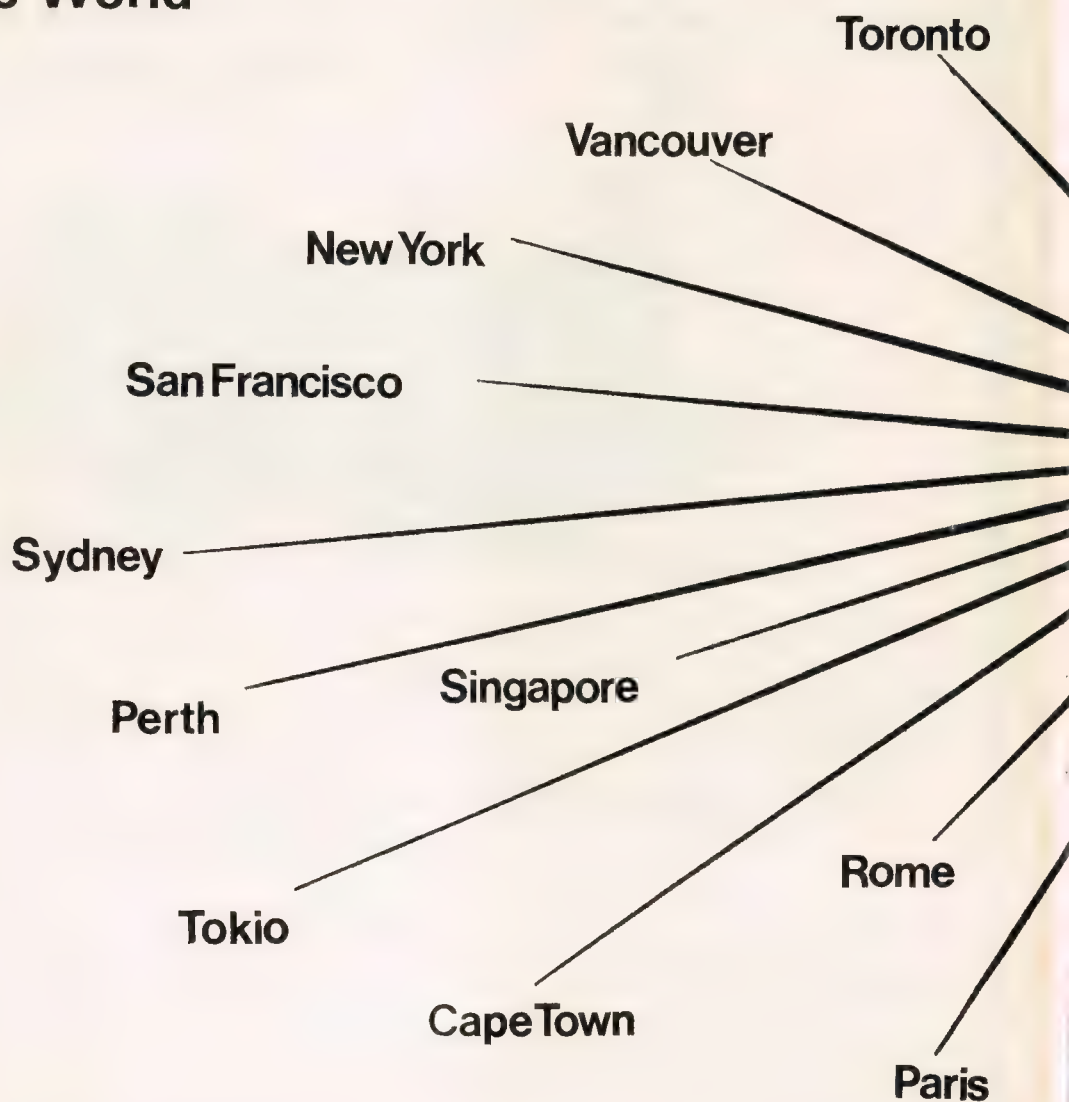
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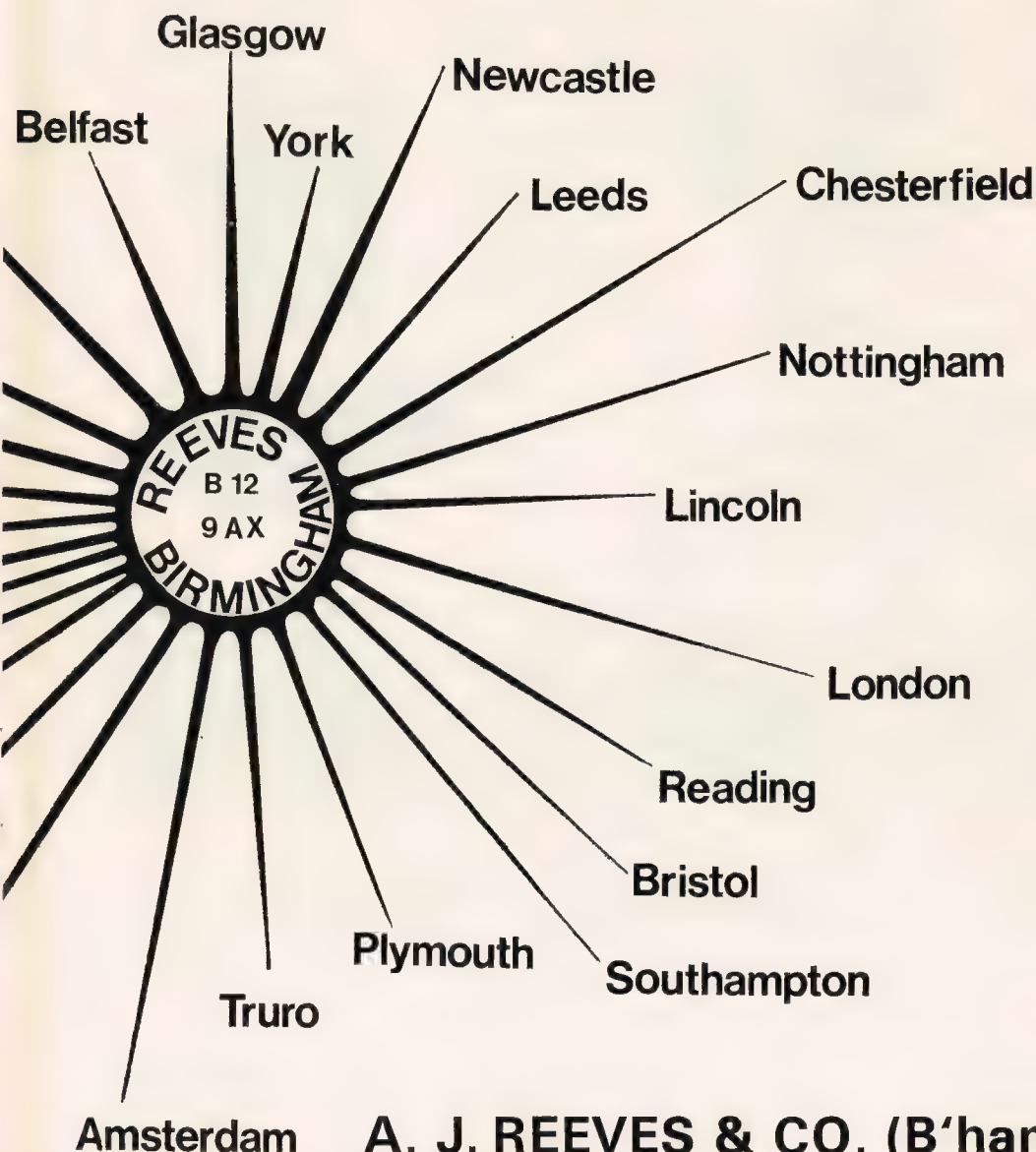
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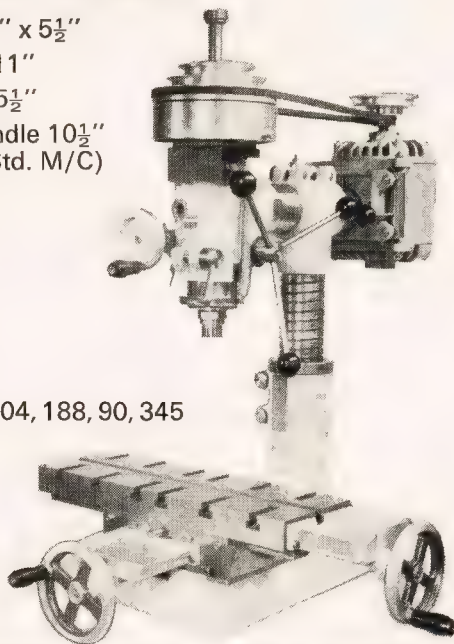


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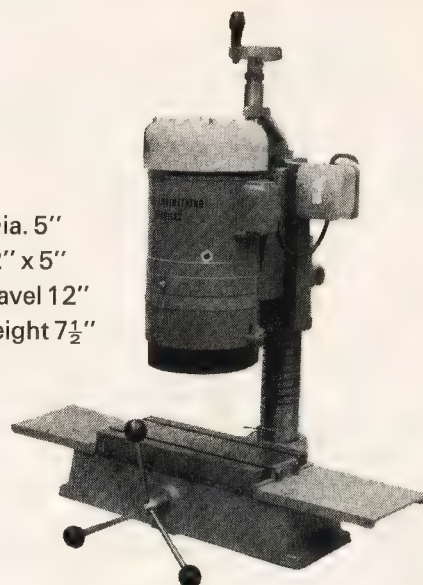
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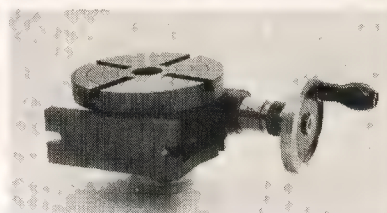


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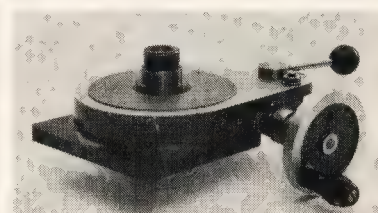
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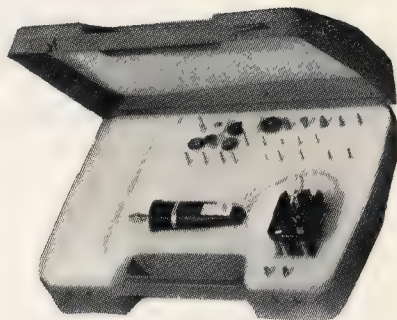
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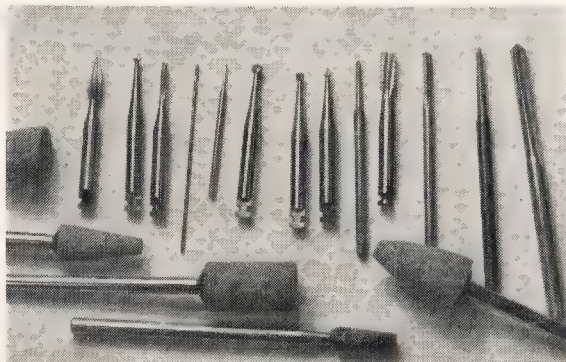
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We can perhaps now add the most important part, our thanks to the valued customers that have supported us over the past years, we hope our products have given you pleasure and will continue to do so for many years to come. The depth of knowledge and talent that the Company has is always available to you, come and see us on stands 20 and 21. We can assure you we shall enjoy meeting you and any help we can give you, gives us great pleasure.

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| 20mm                                       | 25/32"  | 520     | £2.70 | 77p       |
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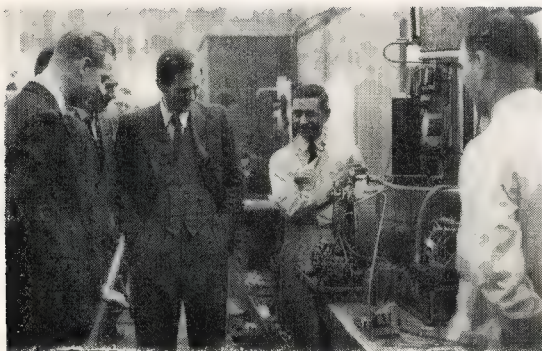
**EMERY CLOTH ROLLS** width 1 1/2" approx 50 yds long 80 grit cloth back, ideal to hang up in your workshop and just tear off as you need it. Excellent quality worth approx £3.50  
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*H.R.H. The Duke of Edinburgh looks at models at a S.M.E.E. Exhibition in 1948. Members will doubtless identify the rest of the party!*

It will not escape the attention of even the most casual visitor to the 43rd 'Model Engineer' Exhibition that there is something special this year about the stand of the Society of Model and Experimental Engineers. There is indeed something special — for this exhibition marks the 75th Anniversary of the Society's healthy and vigorous existence. The Society held its first formal meeting on 2nd November 1898, 11 months after the foundation of 'Model Engineer' by Mr. Percival Marshall, and it has continued to prosper and survive ever since, despite the upheavals of two World Wars and the unsettling consequences that followed upon them.

The Society was originally conceived as a body to be devoted to the construction and operation of model locomotives only, but, happily, this narrow view did not prevail, and at the first preliminary meeting held in October 1898 the founders decided, very wisely, that it should embrace all forms of engineering, including tools and equipment found in the amateur's workshop. The Society was first known as 'The Society of Model Engineers', and its London membership was 67 at the end of its first year, together with 50 provincial members in five branches situated in Bradford, Dundee, Liverpool, Manchester and Sheffield. In subsequent years the number of branches, and the London membership, increased until, in 1904, it was apparently decided that the provincial branches should have complete autonomy, for after 1904 nothing more is

heard of the provincial branches in the Society's annual reports and accounts. In 1911, the name was changed to 'The Society of Model and Experimental Engineers'. The year 1911 was a notable one too, for two other reasons, namely the appointment of the Society's first President, Mr Percival Marshall, and the establishment of the Society's first workshop at 20 Nassau Street, W.1. Since then the Society has had 16 Presidents, and in 1950 acquired more commodious premises at 28 Wanless Road, S.E.24, which it still occupies.

The original decision that the Society's activities should embrace all forms of model engineering was undoubtedly a wise one, as is borne out by the varied nature of the exhibits which competed for the Society's gold, silver and bronze medals that were awarded in the biennial competitions that were a regular feature in the years immediately preceding the First World War. Gold medals ceased to be awarded after World War I, and they are now presented to com-

petitors only for models of the most exceptional quality. Members awarded gold medals up to the 1914-18 war were:

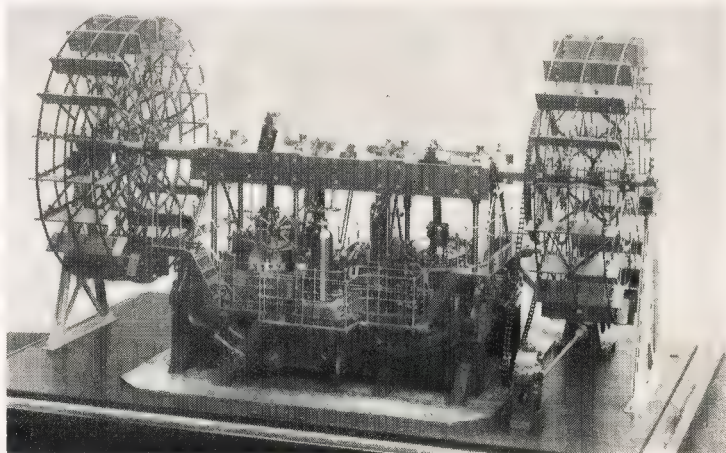
- 1900 — Mr. W. H. Dearden, for his  $\frac{1}{4}$  h.p. gas engine.
- 1907 — Mr. J. Chadwick Taylor, his old time model locomotive 'Agenoria'.
- 1909 — Mr. A. W. Marchant, for his  $\frac{7}{16}$  in. scale L.T.&S.R. locomotive.
- 1911 — Mr. H. Hildersley, for his wavemeter. (The first recorded recognition of amateur interest in 'the wireless telegraphy'.)
- 1913 — Mr. J. D. White, for his model 20-ton road locomotive.

It is unfortunate that the whereabouts of three of the above exhibits are unknown, but it has been found possible to show two of them on the Society's stand; these are Mr. Dearden's gas engine and Mr. Marchant's locomotive, the former through the courtesy of the Institution of Mechanical Engineers and the latter with the kind co-operation of Mr. Marchant's grandson, both of

# The First Seventy-five Years

being a brief history of The Society of Model and Experimental Engineers.

by G. W. Wildy, Member S. M. & E. E.





whom are now the owners of these models.

Although the model making activities of the early members were many and varied, there is no doubt that there was a very enthusiastic band of locomotive devotees, among whom must be numbered Messrs H. C. Boorman, E. L. Pearce, A. M. H. Solomon, W. Blaney, A. Baxter, F. J. Burnham and M. J. Orford. A little later, Messrs J. C. Crebbin and W. Barnard Hart were to add

tive for nothing more is heard of this idea. Some years later, however, the record states that in 1908, Mr. L. M. G. Ferreira and others, reconstructed the first track, which was 72 feet long and capable of taking all gauges of locomotive from  $1\frac{3}{4}$  in. to 5 in. This track also had a facility for electric locomotives in the form of a conductor rail, and thus faithfully reflected the rapidly growing interest of the professional engineers of that

*Dr. Bradbury Winter's magnificent model "Como" normally to be seen in Brighton Museum.*

*Photo: Courtesy of Brighton Art Gallery and Museum.*

*Right: H. W. Hooper (Birmingham) made this fine 1924 T.T. Model Norton motorcycle.*



*Left: Cdr. W. T. Barker's Oscillating Paddle Engine (circa 1847).*

to their considerable talents and prestige to this aspect of the Society's interests. Thus it is learnt that the Society's first live steam portable track had its initial trial on the 9th October 1900. Regrettably, no details are known about this track, although the record shows that it was not entirely satisfactory, and there are infuriating hints at troubles that are not explicitly described. The troubles — probably due to the multiplicity of gauges it was expected to accept — evidently persuaded the Society's Committee, in 1905, to explore the possibility of erecting a permanent track in an unspecified public park, but clearly the local authority was not very co-opera-

time in electrical traction, e.g., the electrification of the Metropolitan and other suburban railways during the early nineteen hundreds. This portable track had the distinction of appearing at the Second "Model Engineer" Exhibition in 1909, and continued to do so until superseded by another track in 1926. The present track, in operation at this Exhibition, is the third in the Society's history; it was designed and constructed by the members, and made its first appearance at the 1952 "Model Engineer" Exhibition. It is 100 feet long, and is capable of being erected in shorter lengths than 100 feet by decrements of 4 feet. For obvious reasons of portability, aluminium

alloy was employed in its construction, and it is somewhat ironical to recall that in 1898 many professional engineers considered that the metal aluminium was unlikely to have much use in engineering apart from the rather unsuitable one of ship-building and, of course, for non-engineering saucepans. Thus does the whirligig of progress operate — for no one, at that time, could possibly have foreseen that an aluminium 'Concorde', and its immediate predecessors, would destroy the need for the huge Atlantic liners which became one of the outstanding features of engineering progress in the early part of the 20th century.

As a final comment on the Society's locomotive activities prior to World War I, it is pleasing to report that in 1913 it was decided to build the Society's own locomotive to a design prepared by Mr. W. Barnard Hart. The whole of the casting for this engine were presented by the retiring President, Mr. Percival Marshall, and was finally completed in 1928; it is still in the possession of the Society, and may be inspected by the interested visitor on the Society's stand. Other famous locomotives built by members and on view on the Society's stand are 'Como' and 'Cosmo Bonsor'. The former is exhibited by courtesy of the Brighton Museum, to whom it was presented by its distinguished builder, Dr. John Bradbury Winter. 'Como', a L.B.&S.C.R. 0-4-2 locomotive,

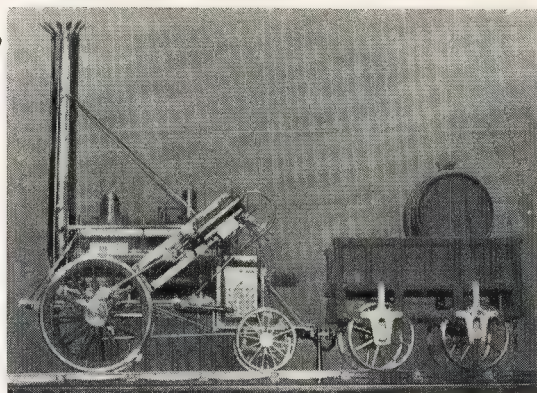


represents, even today, a high-water mark in locomotive construction, and amply confirms that Dr. Bradbury Winter was one of the world's finest craftsmen. 'Cosmo Bonsor', on the other hand, is in a quite different category from 'Como', and was built by Mr. J. C. Crebbin — founder of the Society — largely for the purposes of experiment in the matter of solid fuel firing and compounding, for although 'Cossie' started life as a 4-4-2 four-cylinder tandem compound engine it eventually became what it is today, a simple two-cylinder 4-6-0 coal-fired locomotive. 'Cosmo Bonsor' appeared and ran at the very first "Model Engineer" Exhibition in 1907, and continued to appear and run at every subsequent exhibition until 1950, when it was honourably retired to a glass case existence in the Society's headquarters. During its busy exhibition life, 'Cosmo Bonsor' is estimated to have carried at least 100,000 passengers.

Although it might seem from the foregoing that the membership was somewhat obsessively concerned with model locomotives, it must be emphasised that the members have, from the earliest days, produced many other kinds of models such as stationary engines, marine engines, petrol engines, boilers,

traction engines, precision lathes, clocks, workshop equipment, etc. Indeed, the fact that some of the choicest examples of their work cannot be exhibited on the Society's stand today is a measure of the excellence of their craftsmanship; this apparent paradox may be explained by referring to the collection of five beautiful marine engines constructed by the late Commander W. T. Barker and now on per-

*Above: J. C. Crebbin's "Cosmo Bonsor."*



*Right: Another Dr. Bradbury Winter special—his silver "Rocket."*

manent exhibition in the Liverpool Museum. This means that the Museum Authorities are obliged to keep them on view in Liverpool instead of lending them for public exhibition in London. A similar state of affairs prevails

with regard to a very fine and delicately modelled diagonal paddle engine built by Mr. W. A. Marchant, who, as already stated, was a Society gold medallist in 1909. So too is a model of Gurney's steam carriage and a showman's road locomotive by the late Mr. S. T. Harris, now on show in the South Kensington Science Museum; again the authorities are unable to agree to lending them for display outside the Museum because it is their duty to ensure that the Museum's visitors have an opportunity of seeing these models at all times. However, the models and work currently being shown on the Society's models stand can be considered as representative of the range of work done by its members during the past 75 years.



*Left: Good judges! Ian Bradley with the late J. N. Maske-lyne and the late Edgar T. Westbury complete their marking on the stairs at the Horticultural Hall many, many years ago.*

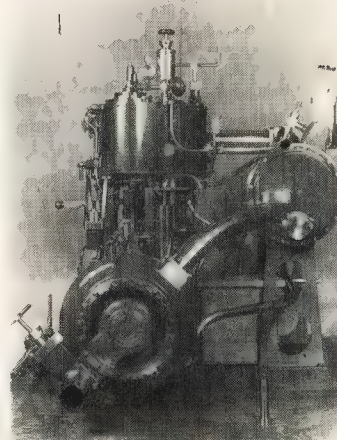
In the Society's workshop — adjacent to the stand — may be seen some other work and activities of the members. Perhaps the most interesting is the engine dynamometer test bench, designed and built by Professor D. H. Chaddock in the early 1930's for the primary purpose of testing small internal combustion engines, particularly with regard to measuring changes of power output as a result of modifying certain design details, such as cam profiles, compression ratios and the like. Some of the early designs of Mr. E. T. Westbury's petrol engines were tested on this bench, which was presented to the Society by Professor Chaddock and now has a permanent home in the Test Room at Marshall House, 28 Wanless Road. For the technically minded, the dynamometer is essentially a swinging field electrical dynamometer with provision for measuring the fuel

consumption and revolutions per minute of the engine. The power of the engine under test is determined by causing it to drive an electrical generator with a separately excited field; this generator is free to rotate on external bearings co-axial with the engine's crankshaft. The tendency of the generator to rotate about this axis is resisted by weights hung on a torque-arm of a known fixed length; the product of this length and the weight when multiplied by the revolutions per minute and a constant gives the actual brake horse power of the engine. The electrical power generated is dis-

sipated by means of a bank of electrical resistances.

Another interesting piece of equipment installed in the Society's Test Room is the locomotive test bench; this was designed and built by the members in 1948 for the purpose of measuring the draw-bar horse power of model locomotives of 2½ in. to 5 in. gauge.

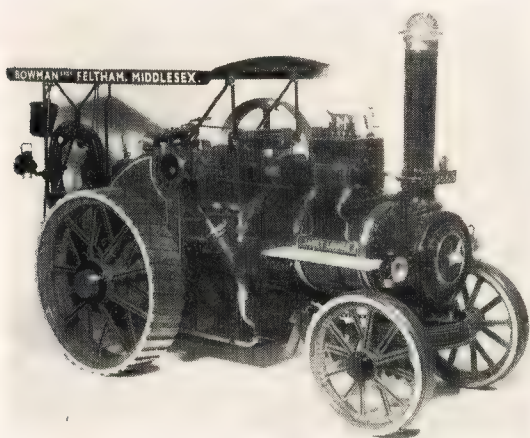
Finally, the interested visitor should take the opportunity to see Mr. W. A. Carter's L.N.E.R. 'Atlantic' locomotive either on exhibition or operating on the live steam track, as this engine enjoys the unique distinction of having been awarded, in 1964,



*Above right: Triple expansion marine engine, seen from the condenser end, built by the late A. W. G. Tucker.*

the Society's only gold medal since 1913.

It is hoped that this short historical note will encourage visitors to visit the S.M.E.E.'s stand, workshop and track, and see for himself the many and varied modelling interests that have enabled it to enjoy an active and fruitful existence for 75 years. The Society has a world-wide membership, and any visitor who has considered joining is cordially invited to obtain further particulars from the duty steward on the Society's working models stand.



*Left: Unknown maker of "Janet Louise" traction is invited to claim authorship.*

## THE EVER GROWING BAND OF ENTHUSIASTS

*(Continued from page 5)*

exhibition, but we do our next best with electric powered models which should continue to surprise. Boats however, will be seen in large numbers on the swimming pool Boating Marina, both "one-off" efforts by individual enthusiasts, group operation by clubs, and trade demonstrations by experts.

But the latest modelling advance is in the enthusiasm for militaria. There is now a vast selection of model soldiers featuring every conceivable period in history and even fiction — with Tolkien's Middle Earth warriors and beasts on offer! This has produced the two basic divisions — those who collect, prepare and arrange dioramic presentations of historic situations and the wargaming "buff" whose models are less painstakingly finished, but uses them to re-fight old battles or to embark on entirely new campaigns. Learning history at school must be taking on an exciting and interesting slant these days! Associated with this aspect must be the work of the plastic modellers, now enjoying a wonderful range of products, but whose interests are less with the soldiers than with the vehicles, tanks, aircraft,

boats that they operated. To some extent these groups intermingle.

We have said little of what is really the foundation stone of our exhibition, the wonderful engineering marvels that come along every year, always with many new different yet equally beautifully made products. No one can fail to be impressed with the traction engines, sometimes to as large as quarter size, the locomotives complete in every detail, and the "tools to make tools" that delight so many amateur engineers with their improvements on lathe and tool equipment that have often prompted trade interests to follow their leads.

Finally, we must firmly say that this is not our show, it is our readers' and the credit theirs almost entirely, we are immensely grateful to our faithful friends of the S.M.E.E. who do so much for us; our Power Boat friends; our military "warriors" of all ages; and not least to the trade support who provide their products for our visitors — many of whom stock up for the year — and work so hard answering questions of the experts and putting the novices on the right road.



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# TRADE . . . . EXHIBITORS

## Stand No. 1

### BIVOUAC BOOKS LTD.

Bivouac Books Ltd., on Stand No. 1, are the publishers of the well known UNIFORMATION series of Napoleonic reference prints for modellers and collectors, and also the ENSIGN series of warship monographs. These items will be on display, together with a catalogue showing the 1974 schedule of new publications. Bivouac, additionally, are U.K. agents for important overseas publishers like Munin of Germany (Waffen—SS histories), McCowat-Mercer of the U.S.A. (American Civil War), Chr. Wurgler Hansen of Denmark (Uniform Plates) etc. All agency publications will (Uniform Plates) etc. All agency publications will be displayed on the stand.

As specialist booksellers, Bivouac will be showing a varied range of international books on Military, Aviation, Naval and American Indian History, with the Historian, Modeller and Wargamer very much in mind. There will also be a small second-hand section plus bargains from Bivouac Reminders, together with Journals and Magazines on our specialist subjects.

## Stand Nos. 2, 3 & 4

### N. MOLE & CO. (MACHINE TOOLS) LTD.

N. Mole & Co. (Machine Tools) Ltd. of Watford, will again be exhibiting machines and equipment of special interest to the Model Engineer. Included will be a selection of centre lathes, drilling machines, milling machines, etc., by leading manufacturers such as Myford, Boxford, Fobco and Startrite. Also shown will be a wide range of engineers' small tools and measuring equipment.

A Denford Viceroy lathe complete with vertical milling attachment will be on show, and considerable interest in this machine is anticipated. A range of Myford lathes and accessories will be on view, together with certain models of the popular Boxford lathes.

N. Mole & Co. specialise in part exchanges, and staff will be on hand to discuss customers' requirements.

It will be well worth your while to make a note to visit stand Nos. 2, 3 and 4, where there is sure to be something of interest to all model engineers.

## Stand No. 5

### SCOT URQUHART LTD.

On the Scot Urquhart Stand the ASTRA range of Bench and pedestal milling machines will be on show. These will include the ASTRA L/2 Junior machine the table being 13 in. x 4½ in. as well as the very popular ASTRA L/4 Senior milling machine. This has a table size 16 in. x 5 in. and can be supplied as a bench or pedestal model. The latest turret version will also be exhibited.

Those of you who have to do a lot of hand filing and sawing will be pleased to see that all this hard work can now be eliminated by using the NEW WONDER filing and sawing machine.

On the small tool and machine tool equipment side we will also be showing hand shears, surface

plates, rotary tables, compound tables, vices, drill chucks, live centres, expanding mandrels, die holders, micrometers, dial indicators, magnetic bases also the KANON Vernier calipers and height gauges.

## Stand Nos. 6 & 7

### MYFORD LTD.

Myford Limited have been manufacturing lathes for the model engineer for nearly forty years, though almost from the inception a certain proportion of the machines have been used by industry both for production and experimental purposes. As the years have passed, the proportion so used has increased appreciably.

The quality of the machines, the degree of interchangeability, resulting in the ease with which replacement parts may be fitted and the very wide range of additional equipment which covers not only the conventional centre lathe accessories but also milling equipment such as vertical slides, milling arbors, dividing attachments and so on have all contributed to the world-wide popularity of Myford lathes. So far as the ML7 and Super 7 lathes are concerned, there is also a range of purely production equipment such as lever operated collet chuck, lever operated and screw operated part-off slides and six-station turrets.

Particularly so far as quality is concerned, the Myford lathes have gained appreciably from the fact that they are manufactured in the same plant alongside the range of precision cylindrical grinding machines.

The exhibits will include the ML7, Super 7 and ML10 metal turning lathes, Tri-Leva speed selector, quick change gearbox and Rodney vertical milling attachment which were shown last year for the first time also an ML8 woodworking lathe and equipment. Demonstrations will be taking place throughout the exhibition.

## Stand No. 8

### WALL MODELS LTD.

Wall Models Ltd. on stand No. 8 will once again be presenting a range of figures, equipment and accessories catering for all the needs of Wargamers and Military figure collectors.

This year we shall specialise with figures and equipment by Miniature Figurines, Lasset, Phoenix, Garrison and Lamming.

We shall also have a wide range of plastic kits of military interest, by Airfix, Fujimi, Hasegawa, Bandai, Eidai, etc., together with Almark and Osprey military books, and the famous Westwood Cavalry Uniforms Calendars for 1974, containing 13 beautiful full colour prints all worthy of framing.

So come to Stand No. 8, where all the staff are also enthusiasts in all fields of wargaming and military figure painting and collecting.

## Stand No. 9

### HISTOREX AGENTS

For the 6th consecutive year Historex have pleasure in exhibiting at the Model Engineer Exhibition. In our first write up in 1969 we had to explain who we were and what we produced. Now Historex are well established as the leaders in the field of plastic engraving. Specialising in Napoleonic soldiery, there will be some most superb examples of the model maker's skill on show. Figures made by enthusiasts in the U.K., France and the U.S.A. New and interesting figures not seen in previous

years will be exhibited. The usual sales service will be available and technical advice offered.

The staff of Historex Agents who man the exhibition stand look forward to meeting all their old customers and to introducing new ones. We sometimes have a sense of guilt that in selling a newcomer a Historex kit, we are selling him an addictive drug. Do pay a visit to our stand.

#### Stand No. 10

##### MODEL SHIPWRIGHT

This year has seen the completion of the Apple-dore replica of the 'Golden Hinde', an event which 'Model Shipwright' celebrated with the publication of the first series of 'Shipwright Specials' called 'Modelling the Golden Hinde'. Our stand continues this theme in photographs, slides and plans, and during the course of the Exhibition a skilled modeller will be using the information and plans provided by this book to build a representative model of Drake's famous ship.

Practicality is the keynote in these 'Specials' as in 'Model Shipwright' itself, and to this end, experienced model makers will be on the stand every day, ready and willing to discuss problems, to advise on choice of projects or materials, or to impart information on plans or research sources. Demonstrations of such aspects of modelling as the use and care of tools, or the mysteries of rigging, will take place daily. Static displays will include samples of timber, jigs and gadgets that have appeared in 'Model Shipwright', drawings, plans, ship-modelling books and, of course, some very fine scale models.

#### Stand No. 11

##### SERIES 77

Series 77 was started some three years ago with the idea of promoting interest in the larger type of military miniature, because it was felt that more detail and better quality could be attained. After much hard work and some setbacks, this has proved to be completely justified. It can now be said that Series 77 have set a standard on which everyone else tries to build.

In view of the results of our efforts, we now have confidence enough to have a Sales and Display stand at the leading exhibition of its kind in this field.

Many painted Dioramas will be on view, together with examples of castings showing stages of production, also painting procedures.

Exciting new models will be on view and available to the collector. It is also hoped to spend some time on demonstration, but this may be limited through lack of space.

It is hoped that customers, collectors and indeed anyone interested, will come and meet us at the Series 77 stand!

#### Stand Nos. 12, 14 & 15

##### MODEL & HOBBY CONSORTIUM

Model & Hobby Consortium once again has one of the largest selections of models on display. Famous for new arrivals at exhibition time, this year should prove to be a bumper occasion, with imminent deliveries from several world famous manufacturers.

In the past, our stand has had the reputation of being our annual 'January Sale' so look out for all sorts of bargains at ridiculous give-away prices, particularly towards the end of the exhibition.

As usual experts will be on hand to help you chase your requirements (our in depth stock can be quite bewildering!).

This year we are concentrating on plastic kits, wargaming and soldier modelling. We have always been at the forefront with model soldiers and our display proves the point, with a collection catering for all tastes and pockets.

Our selection of plastic kits is simply unrivalled!

So don't miss us (as if you could) if you want the very finest available.

#### Stand Nos. 16, 17 & 18

##### BEATTIES OF LONDON LTD.

Once again England's Leading Model Shops will be exhibiting a large selection of their ranges, including Triang-Hornby, Hornby-Minitrix, 'Fabulous Fleischmann', Wills Kits, L.G.B. and, of course, the smallest of all 'Z' gauge by Marklin. Preiser '00' and 'N' figures, Faller '00' and 'N' model kits, Wiking models.

Also on show, and for sale, you will find most railway accessories, i.e., Riko scenic accessories—trees, grass mats and colouring. Busch 'N' gauge scenic accessories. Weller soldering iron.

For the modeller there will be kits by Tamiya, Airfix, Billing Boats & Revel plastic kits. Meccanno. Paints by Testor and Badger Air brushes.

In addition to offering the best value in the trade, Beatties will offer the same world-famous service that is available at their branches in Southgate, Holborn, Manchester and Leeds; the same service that is enjoyed by thousands using their Mail Order Service.

So make sure that you do not miss Stand Nos. 16, 17 and 18 at this exhibition, or all the year round at their permanent exhibitions at 112 High Holborn, London WC1V 6JS; 10 The Broadway, Southgate N14 6PN; 14 Spring Gardens, Manchester M2 1EE and 18 King Charles Street, Leeds LS1 6LT.

#### Stand No. 19

##### PLAISTOW PICTORIAL

Plaistow Pictorial will again have their full range available for sale at the show. More colour prints have been added during the year, including Phantoms and a Sunderland. The black and white range has also had additions in the 'battle prints' series and prices have not increased. **Aviation News** the aviation fortnightly newspaper will also be on sale together with our new publication **After the Battle** a magazine packed with comparison 'then and now' photographs of battlefields, articles on wreck recovery, personalities, war films and the home front.

#### Stand Nos. 20 & 21

##### HINCHLIFFE MODELS

Hinchliffe Models extend a welcome to all and particularly hope that our stand will give you the opportunity to view our most comprehensive range of cast military figures and equipment models.

Although our company first made its impact because of the variety and excellence of our equipment models, we have enjoyed even greater success since the introduction of our now celebrated and well-known 25 mm. figure range.

For the duration of the exhibition some members of our design or production staff will be on hand to answer your queries, note your comments, discuss our further plans, etc.

## Stand No. 22

**KENNION BROS. (HERTFORD) LTD.**

Charles Kennion is once again on Stand No. 22; (it is still to the left of the main entrance of the Hall) and is still giving you the benefit of now 52 years of practical model steam locomotive building.

This knowledge and experience is backed by an almost limitless supply of drawings-castings and all materials to build a steam locomotive from '0' to 7½ in. gauge.

The raw materials and tools on display are: taps, dies, drills, 'D' bits, dieholders, wrenches, box spanners, boring bars, rivet snaps, miniature end mills, centre drills, springs and a full range of all small sizes of tubing, rods and sheets, in brass, copper and steel.

The supply and range of fittings has been widely extended, covering three sizes of drain cocks, three sizes of injectors, four sizes of lubricators, four sizes of water gauges, check valves, blower valves, by-pass valves, injector valves, blow down valves, W/V and Turrets, whistles, eighteen sizes of safety valves and the latest addition to the range, sets of pawls, springs, ratchet wheel and sheet brass cut to size to make LBSC type lubricators, dead flat and true to size.

Lastly, very, very small hardened steel taper pins with tapered reamers to match.

A call to the stores at 2 and 2A Railway Place, Hertford, will be an eye-opener and a delight to all those seeking raw materials or advice.

## Stand No. 23

**S.I.M.E.C. (Stuart International Model Engineers' Club)**

Once again we welcome not only existing members but all model enthusiasts who are interested in joining a truly international organisation. We now have several hundred members in many countries throughout the world, including most of the United States, New Zealand, Canada, Holland, France, Chile, Mexico, West Germany, Portugal, Spain, Malta, Bermuda, Kenya, South Africa, Eire, Pakistan, Norway, Sweden, Singapore, Denmark and Japan, apart from a substantial 'home' membership in most parts of the United Kingdom.

The bi-monthly Newsletters contain illustrated articles on a wide variety of engineering and model topics and a popular 'Correspondence' section whereby members' queries can be publicised and answered. The Members' Directory has a key which lists special skills such as boiler making, screw cutting, pattern making, etc., so that less experienced members can call upon expert advice and experience either by correspondence or personal visit where possible.

## Stand No. 24

**THE OLD GUARD**

The Old Guard makes its first appearance at this year's Model Engineering Exhibition. The company is the first U.S. figure concern to arrange fully independent marketing and production facilities in the United Kingdom. The complete range of superlative models is available from the British company.

Perhaps the most outstanding single item in the Old Guard range is the all-metal 1:32 scale M3 light tank which contains more than one hundred parts. The tank comes in three different versions and the finished kits can be seen at the Old Guard display.

The Old Guard series has representative figures from Ancient Greece to the Second World War. Although the company's reputation was founded on its individual soldiers of the Russian Army of 1812 and, subsequently, the Army of Imperial Rome, recent releases have concentrated on the concept of 'Total Detail'. The collector is now able to buy, in one package, the figures and equipment to make a complete diorama. Each figure can also be obtained separately and is a connoisseur piece in its own right.

## Stand No. 25

**A. T. LEE & CO. LTD.**

Showing for the first time at the Model Engineer Exhibition the Bottle-Chopper, as shown on B.B.C.'s Television Tomorrow's World. Now you can turn all those no-deposit bottles into many useful items, such as drinking glasses, ashtrays, flower vases, napkin rings etc. Continuous demonstration, a fascinating hobby for all ages.

## Stand No. 27

**EURO-MODELS**

Euro-Models are importers of high class model kits manufactured in Italy, West Germany and France, together with associated tools, plans, ship fittings and cannon kits, as follows:

**Aeronaut:** World War 2 German naval warships —Bismark, Scharnhorst, Prinz Eugen, Nurnberg, all in 1/200 scale.

**Steingraeber/Froment:** Plank on frame boat kits —French destroyer Surcouf, frigate Le Corse, trawler Marie.

**Aeropiccola:** Full range of period model boat kits of high quality, including H.M.S. Bounty, Golden Hind, Ark Royal, Serapis, Constitution, together with demonstration of the Vibro-Saw (mains voltage fret-saw) and the clockwork diesel engine starter.

**Corel:** The through section at the centre of H.M.S. Victory in 1:98 scale, all in wood and brass. Also an elegant model kit of La Toulonaise.

**Mantua-Sergal:** Perhaps the centre piece of the stand, 1:78 scale 51 inches long H.M.S. Victory.

## Stand No. 28

**GREENWOOD & BALL LTD.**

Greenwood and Ball, one of the oldest and longest established names in the Model Soldier World, will be showing their entire range of products.

The extremely popular Lasset 54mm ranges go from strength to strength. These figures, the equal of any currently available, include among their latest releases many exciting and intriguing figures.

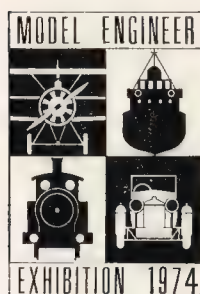
Also in 54mm, but in a different vein, is the Sanderson range. These well-known figures are famous for their attention to detail and unmatched characterisation.

A newcomer in the form of cameo miniatures will make an appearance. The first items of an extensive range of superb quality and realism depict well-known historical figures.

The Garrison Wargame range, now remade in 25mm and well established include figures of many types covering the entire historical spectrum from modern to ancient. Perhaps best known for the superb ancients these wargame models bear very favourable comparison with any other range in this field.

Neglected somewhat recently, the 30mm scale received a welcome fillip in the form of minot figures.

(Continued on page 55).



# MODEL ENGINEER EXHIBITION 1974 COMPETITION & LOAN ENTRIES

## CLASS DE. Duke of Edinburgh Challenge Trophy.

| Type                          | Name                                            |
|-------------------------------|-------------------------------------------------|
| 1 Naval Schooner 1775         | E. P. Heriz-Smith<br>( <i>Tunbridge Wells</i> ) |
| 2 Thames Motor Tug "Sun LXXI" | A. Waller<br>( <i>Watford WD2 4EA</i> )         |

## CLASS A. Locomotives. 2½ in. gauge and over.

| Type                                                 | Name                                                 |
|------------------------------------------------------|------------------------------------------------------|
| 1 G.W.R. 1000 "County of Gloucester"                 | G. Jones<br>( <i>Stroud GL5 3SH</i> )                |
| 2 "Aerolite". As built in 1851                       | M. H. Cox<br>( <i>High Wycombe, Bucks.</i> )         |
| 3 "Tich" Small Steam Locomotive                      | M. J. Gibbs<br>( <i>Ewell, Surrey</i> )              |
| 4 "Evening Star" B.R. Class 9F 2-10-0                | E. Lowe<br>( <i>Rotherham S60 2JL</i> )              |
| 5 A1 L.N.E.R. Pacific No. 4470                       | J. C. Flint<br>( <i>Stroud, Glos.</i> )              |
| 6 Stephenson's "Rocket" 7¼" gauge coal fired         | W. L. Hayward<br>( <i>Carshalton, Surrey</i> )       |
| 7 "Evening Star" 3½" gauge                           | W. R. Skuse<br>( <i>Ramsgate CH12 5HY</i> )          |
| 8 Hercules                                           | B. Newman<br>( <i>Moulstord OX10 9JF</i> )           |
| 9 L.M.S. Beyer Garratt                               | A. W. Edgson<br>( <i>Leighton Buzzard, Beds.</i> )   |
| 10 "Tich" 3½" gauge                                  | Z. Horton<br>( <i>Stevenage SG1 5HN</i> )            |
| 11 Rob Roy 0-6-0 Tank Engine                         | S. G. Irwin<br>( <i>Corringham SS17 7SJ</i> )        |
| 12 Rob Roy 3½" gauge Caledonian Railway Dock Shunter | J. Brooker<br>( <i>Bexhill-on-Sea, Sussex</i> )      |
| 13 204 h.p. Diesel Shunter (Hunslet)                 | P. A. Johnson<br>( <i>Gosforth NE3 4DX</i> )         |
| 14 Midland Railway 4-2-2 "Princess of Wales"         | B. Hares<br>( <i>Great Barr, B'ham</i> )             |
| 15 G.W.R. 5800 Tank Locomotive                       | K. J. Woodham<br>( <i>Carlton-le-Moorland</i> )      |
| 16 "Tich" 0-4-0 plus Driver Truck.                   | F. W. Lloyd<br>( <i>Patchway Nr. Bristol</i> )       |
| 17 "Royal Scot" 3½" gauge 3-cylinder.                | D. W. Tudhope<br>( <i>Bristol B56</i> )              |
| 18 "Rob Roy" 3½" gauge 0-6-0 Locomotive.             | H. A. & F. J. Scrase<br>( <i>Horfield, Bristol</i> ) |
| 19 B2 Class "Royal Sovereign".                       | F. R. M. Lowne<br>( <i>Bromley, Kent</i> )           |
| 20 0-6-0T Simplex.                                   | H. W. Saunders<br>( <i>St. Albans, Herts</i> )       |
| 21 Contractors' Locomotive "Tich".                   | Barry F. Blake<br>( <i>Stroud, Glos.</i> )           |

## CLASS A1. Locomotives — to any L.B.S.C. design 2½ in. gauge and over.

| Type                        | Name                                         |
|-----------------------------|----------------------------------------------|
| 1 5" "Titfield Thunderbolt" | M. H. Cox<br>( <i>High Wycombe, Bucks.</i> ) |

This Exhibition is certified by the Board of Trade for the purpose of Section 51 (2) of the Patents Act, 1949, and of Section 6 (2) of the Registered Designs Act, 1949.

It is necessary that Exhibitors wishing to avail themselves of the protection afforded should make formal application for the grant of a patent or the registration of a design, as the case may be, not later than six months after the opening of the Exhibition.

### AWARDS

The cups and medals will be forwarded to the successful competitors as early as possible after the close of the Exhibition, when names have been engraved and diplomas signed.

### PRIZE POOL ALLOCATION

Classes attracting six or more entries will enjoy prizes to value of 1st £5; 2nd £3; 3rd £1. With over 12 entries 1st £7; 2nd £4; 3rd £2; 4th £1. Classes under six will have 1st and 2nd only, or at the discretion of the judges may be amalgamated with other classes, or given a discretionary award only. Prizes may take the form of Vouchers, Cash, Replica Trophies (for Challenge Trophy winners) or Championship Trophies.

### NATIONAL AWARDS

A number of magnificent trophies have been donated in the past for competition in "Model Engineer" Exhibitions. These cups and trophies are awarded on the occasion of M.E. Exhibitions. Winners hold their trophy for one year only.

In some cases additional prizes in the form of vouchers for goods from firms exhibiting at the Exhibition or advertising in the Souvenir Catalogue may also be awarded.

### JUDGING

Judging will take place immediately before the Exhibition opens. Printed results should be available by the day following and will be inserted in catalogues obtained at the show, or will be available on demand by visitors.

### \*SILVER AND BRONZE MEDALS

Offered in all classes, provided the work is considered by the judges to be of medal standard. The medals will be awarded on the quality of individual models, and not on any placing of the entries in order of merit in a class.

\*Silver and bronze coloured.

### DIPLOMAS

The judges are empowered to award diplomas in recognition of special merit in all classes at their discretion.

### CERTIFICATES

Certificates of entry are given to the owner of every model exhibited in the Competition sections.

**THE AVELING-BARFORD TROPHY**

Presented by the directors of Aveling-Barford Ltd., for annual award to the best working model traction engine, road roller or steam wagon.

**THE BOWYER-LOWE CHALLENGE CUP**

Donated by Mr. A. E. Bowyer-Lowe, to be awarded for the best example of craftsmanship and design in the Tools and Workshop Appliances class.

**THE BRADBURY-WINTER MEMORIAL CHALLENGE CUP**

Donated by Mrs. Bradbury-Winter and a number of friends, to be awarded annually, at the discretion of the judges, for the most outstanding example of amateur mechanical craftsmanship.

**THE "BRISTOL" CHALLENGE CUP**

Donated by the Bristol Aircraft Company. To be awarded annually for the best model of a "Bristol" aircraft.

**THE CREBBIN MEMORIAL CUP**

Donated by certain friends of the late Mr. J. C. Crebbin. To be awarded for the best entry in the Locomotive, General Engineering and Mechanically-propelled Road Vehicles Classes.

**THE H. V. EVANS TROPHY**

Donated by the Thames Shiplovers' Society in honour of its founder, Mr. H. V. Evans. To be awarded annually at the discretion of the judges for research and/or presentation of a ship model.

**THE EXIDE AND DRYDEX CHALLENGE CUP.**

Donated by the Directors of Chloride Batteries Ltd., for annual award. To be awarded at the discretion of the judges to the best model incorporating a battery entered in any section.

**THE JOHN GRAY MEMORIAL TROPHY**

Donated by the family of the late John Gray for the best Class N model by an entrant under 21.

**L.B.S.C. MEMORIAL BOWL COMPETITION**

A handsome trophy presented by public subscription by admirers of the late L. "Curly" Lawrence, known throughout the world as L.B.S.C. to be for a locomotive of his design, which will be judged on both appearance and performance.

**THE MALTBY TROPHY**

Donated by Mr. M. Maltby to be open for competition by Ship Model Societies exhibiting at the Model Engineer Exhibition.

**J. N. MASKELYNE MEMORIAL TROPHY**

To be awarded, at the discretion of the judges, for the model locomotive, in any scale, which does most to promote fidelity of design.

**THE MAZE CHALLENGE CUP**

Donated by Sir Frederick Maze, K.C.M.G., K.B.E., to be awarded annually for the best model of a sailing ship (pre-1820) or of an Oriental sailing craft of any period.

**THE MECCANO CUP**

Presented by the Directors of Meccano (1971) Ltd., for the best Meccano exhibit.

**THE MODEL RAILWAYS BOWL**

Presented by the proprietors of "Model Railways" for the best small gauge railway exhibit.

- |    |                                                         |                                            |
|----|---------------------------------------------------------|--------------------------------------------|
| 2  | Small Boiler "Tich"                                     | Andrew M. Mitchell<br>(Ayrshire, Scotland) |
| 3  | 3½" gauge 2-4-0 L.N.W.R. Locomotive "Mabel" by L.B.S.C. | John G. Walker<br>(Matlock, DE4 5AQ)       |
| 4  | 3½" gauge L.B.S.C. "Molly" 0-6-0                        | L. F. Morley<br>(Portsmouth, Hants.)       |
| 5  | L.N.E.R. Atlantic (Maisie)                              | David E. Pearson<br>(Canterbury, Kent)     |
| 6  | 3½" gauge "Mona"                                        | William Beckett<br>(Dover, Kent)           |
| 7  | L.N.W.R. 2-4-0 "Mabel"                                  | Ian R. Page<br>(Holmrook, C'land)          |
| 8  | L.B.S.C. "Mona"                                         | Arthur Phillips<br>(Urmston, Manchester)   |
| 9  | 3½" gauge "Oliver Cromwell"                             | E. D. Lowndes<br>(Cheshire WA15 0BN)       |
| 10 | —                                                       | Peter Gardner<br>(Camberley, Surrey)       |
| 11 | Megan based on L.B.S.C. "Mona"                          | L. Disney<br>(Leavesden, Watford)          |
| 12 | 'Juliet' 3½" gauge model loco.                          | Allen F. Bray<br>(Hockley, Essex)          |
| 13 | Tich and Truck 3½" gauge.                               | W. Burnett<br>(Henbury, Bristol)           |
| 14 | Pamela 'Mary Jeans' 3½" gauge 4-6-2 loco.               | K. H. Cribb<br>(Keynsham, BS18 1RW)        |
| 15 | County of Merioneth 4-6-0.                              | K. A. Gould<br>(Bristol BS7 9BA)           |
| 16 | 3½" gauge Doris by L.B.S.C.                             | Derek Pring<br>(Kingswood BS15 4ST)        |
| 17 | G.W.R. Pannier Tank 'Pansy'.                            | Sydney Stokes<br>(Bristol)                 |
| 18 | Maisie 4-4-2 3½" gauge.                                 |                                            |

**CLASS B. Locomotives. In gauge 1 and 0.**

- | Type                                           | Name                                          |
|------------------------------------------------|-----------------------------------------------|
| 1 "Sir Hardman Earle" L.N.W.R. 2-4-0 No. 890   | Geoffrey Pember<br>(Loughton, IG10 4PU)       |
| 2 2-4-0T Tank Engine                           | Roger D. Bugg<br>(Dartford DA1 2RU)           |
| 3 G.W.R. Loco. 3108 "Lady Margaret" as in 1948 | Frank E. Hemming<br>(Solihull, Warwicks)      |
| 4 G.W.R. "Henry VIII" B.R. Style               | James Stuart Bremner<br>(Southwick, BN15 4LB) |
| 5 Caledonian Rly 0-6-0 tank loco.              | W. J. Sanderson<br>(Bath BA2 2AN)             |
| 6 L.N.E.R. Ex G.E.R. Super Claude 4-4-0.       | K. W. Simmons<br>(St. Albans, Herts)          |

**CLASS BA. Locomotives. In gauges smaller than 0.**

- | Type                                           | Name                                    |
|------------------------------------------------|-----------------------------------------|
| 1 L.B.S.C. Billington "K" Class Mogul          | John R. Brierley<br>(Hove, Sussex)      |
| 2 Atlantic No. 2425 "Trevoise Head"            | John R. Brierley<br>(Hove, Sussex)      |
| 3 —                                            |                                         |
| 4 "Lord Nelson" Class Locomotive No. 864       | John R. Brierley<br>(Hove, Sussex)      |
| 5 Schools Class 927 "Clifton" Southern Railway | Barry J. F. Gant<br>(Weston Park, Bath) |
| 6 —                                            |                                         |
| 7 L.N.E.R. Class J21 0-6-0 tender loco.        | J. Armstrong<br>(Welwyn Garden City)    |

**CLASS C. Rolling Stock and Accessories Gauge 1 and 0 or larger.**

- | Type                          | Name                                  |
|-------------------------------|---------------------------------------|
| 1 Petrol Tank Wagon (1946)    | Alfred A. Verity<br>(Surrey, KT6 5LG) |
| 2 "Simplex" Diesel Locomotive | G. R. Hatherill<br>(Croydon, Surrey)  |
| 3 Random Stone Tunnel Mouth   | Roger D. Bugg<br>(Dartford DA1 2RU)   |

- |   |                                               |                                                   |
|---|-----------------------------------------------|---------------------------------------------------|
| 4 | 13T Open Five-Plank Wagon and a 20T Brake Van | Roger D. Bugg<br>( <i>Dartford DA1 2RU</i> )      |
| 5 | LMS 5-Plank open wagon.                       | Michael V. Pollard<br>( <i>Harrold MK43 7BJ</i> ) |

**CLASS CA. Rolling Stock and Accessories. Gauges smaller than 0.**

- | Type                  | Name                                         |
|-----------------------|----------------------------------------------|
| 1 Goods Rolling Stock | Barry J. F. Gant<br>( <i>Bath, BA1 4BA</i> ) |

**CLASS D. Steam and Motor Ships of any period (Nonworking).**

- | Type                                             | Name                                                  |
|--------------------------------------------------|-------------------------------------------------------|
| 1 R.M.S. "Queen Mary"                            | H. J. Pannett<br>( <i>Hillingdon, UB8 3RA</i> )       |
| 2 Waterline Tug "Turmoil"                        | Cdr. F. R. Guffick<br>( <i>Romford, Essex</i> )       |
| 3 Waterline H.M.S. "Calliope" 1915 period        | Cdr. F. R. Guffick<br>( <i>Romford, Essex</i> )       |
| 4 Deep Sea Salvage Tug                           | J. W. Way<br>( <i>Norfolk, IP24 1DG</i> )             |
| 5 Waterline Destroyer Co Class H.M.S. "Cossack"  | Eric R. Dyke<br>( <i>Wivenhoe, Essex</i> )            |
| 6 Waterline H.M.S. "Cavalier" Destroyer CA Class | Eric R. Dyke<br>( <i>Wivenhoe, Essex</i> )            |
| 7 Anti Submarine Royal Naval Frigate             | Waugh George Morrel<br>( <i>Sunderland, SR4 9RQ</i> ) |
| 8 Modern Cargo Liner M.V. "Arcadian"             | S. R. C. Walmsley<br>( <i>Freshfield, Liverpool</i> ) |
| 9 Black Swan Class Frigate                       | A. Gladwell<br>( <i>Gravesend, DA13 9HH</i> )         |
| 10 "Dannebrog" (Danish Royal Yacht)              | Timothy Cree<br>( <i>Brighton, BN1 3JN</i> )          |
| 11 H.M.S. Hogue Battle Class destroyer 1944.     | Douglas Burchell<br>( <i>Little Sutton</i> )          |
| 12 H.M.S. Hedingham Castle Frigate Class.        | Bill Nunn<br>( <i>Battersea SW11</i> )                |

**CLASS E. Power Driven Boat Models. (Complete with power plant). Scale or freelance.**

- | Type                                               | Name                                                 |
|----------------------------------------------------|------------------------------------------------------|
| 1 114' Streamlined Tug                             | George Ashurst<br>( <i>Farnham, Surrey</i> )         |
| 2 Coaster                                          | R. J. F. Richardson<br>( <i>Hartlepool, Durham</i> ) |
| 3 Vosper R.T.T.L.                                  | David Campbell<br>( <i>Battersea, S.W.11</i> )       |
| 4 Mississippi Rear Paddle Steamer                  | David Campbell<br>( <i>Battersea, S.W.11</i> )       |
| 5 Aerial, Scottish Seine Net Motor Fishing Vessel  | R. S. Goddard<br>( <i>Chesham, Bucks.</i> )          |
| 6 H.M.S. "Brave Borderer" Fast Patrol/Torpedo Boat | Alan William Poole<br>( <i>Dover, Kent</i> )         |
| 7 "Surfury" — Off-shore Power Boat                 | Robert Guest<br>( <i>Chadwell Heath, Essex</i> )     |
| 8 Based on H.M.S. "Illustrious" 1940               | Gordon John Cutting<br>( <i>Romford, Essex</i> )     |
| 9 Old Woolwich Free Ferry                          | P. Jenkins<br>( <i>London, E.16</i> )                |
| 10 Battleship "Bismarck"                           | Hubert R. Wilson<br>( <i>Surrey, KT12 2GS</i> )      |
| 11 H.M.S. "Janus" "J" Class Destroyer 1939         | Alan Hall<br>( <i>Kent, BR6 8BX</i> )                |
| 12 Semi-Scale Freelance Deep Sea Fishing Trawler   | Martin Floyd<br>( <i>Clifton, Bristol 8</i> )        |
| 13 Black Swan Frigate (Modified)                   | Tom Andrews<br>( <i>Hounslow, Middx.</i> )           |
| 14 S.S. "Great Eastern"                            | Leonard H. King<br>( <i>Hayling Is., Hants.</i> )    |
| 15 Tug "Cervia"                                    | Ted Gillies<br>( <i>Westcliff-on-Sea</i> )           |

**NEW ZEALAND CUP**

Presented by the Model Societies of New Zealand for the best model of a locomotive based on a design by L.B.S.C.

**THE U.S.S.R. CENTRAL MARINE CLUB CHALLENGE CUP**

Donated by the Council of Central Marine Club (U.S.S.R.). To be awarded annually to the Club whose exhibit represents the best achievement in marine model engineering.

**EDGAR WESTBURY MEMORIAL CHALLENGE TROPHY**

Presented by the Society of Model & Experimental Engineers to be awarded at the discretion of the Judges annually for originality and soundness of design in any type of prime mover, working plant in a marine craft, or fidelity to prototype of a working model i.e. engine.

**THE H. C. WHEAT CHALLENGE CUP**

The H. C. Wheat Challenge Cup presented by his Son in memory of H. C. Wheat 1877-1948 to be awarded annually for the best O Gauge Locomotive exhibited.

**THE WILLIS CHALLENGE CUP**

Donated by Mrs. Willis, in memory of her husband, to be awarded annually for the best exhibit in the Hydroplane and Speedboat Section.

**CHAMPIONSHIP CUPS**

In addition to challenge trophies a number of cups or other trophies are offered to become the permanent property of the winners. Class trophies are offered as follows for the best:

- I. Locomotive.
- II. Steam or Motor Vessel.
- III. Sailing Ship or Yacht.
- IV. Ship Miniature.
- V. Mechanically propelled Road Vehicle.
- VI. General Engineering Exhibit.
- VII. Aircraft Model.

**STUDENTS' CUPS**

Awarded for any piece of amateur craftsmanship made collectively or individually by a class or member of a class of any school or technical college, or by a full time engineering apprentice. The exhibitor (or exhibitors) must be under the age of 18 on December 31st, 1973.

**SCHOOLS' COMPETITION**

For boys under 16 who are still at school. Entries can be made individually or collectively provided that the competitors are under 16 on December 31st, 1973.

**DUKE OF EDINBURGH CHALLENGE TROPHY**

1. A very handsome silver tankard, this trophy shall be known as The Duke of Edinburgh Challenge Trophy, and shall be awarded to the winner of the Championship Award at The Model Engineer Exhibition.

2. The Trophy shall remain at all times the property of Model & Allied Publications Ltd.

3. The name of the winner and the date of the year in which the award is made shall be engraved on the Trophy, which may remain, at the discretion of Model & Allied Publications Ltd., in his possession until required for renovation and display at the following Model Engineer Exhibition.

The winner shall be presented with a suitably inscribed tankard for his permanent retention.

4. Any piece of model engineering work shall be eligible for the Championship Award after it has been

awarded, at The Model Engineer Exhibition, a Championship Cup, Gold or Silver Medal or one of the Cups donated by Friends of the Exhibition.

5. No model may be entered more than once.

6. Entry, which shall be free, shall be made on the official Competition Entry Form. Competitors must state on the Entry Form:

- that exhibits are their own bonafide work;
- any parts or kits which were purchased or were not the outcome of their own work;
- that the model has not been structurally altered since winning the qualifying award;
- the origin of design.

7. Model & Allied Publications Ltd., may, at their sole discretion, vary the Conditions of Entry without notice.

#### GENERAL CONDITIONS OF ENTRY

- Each entry shall be made on the official form and every question must be answered. Be sure to include the estimated value of your model.
- All entry forms shall be accompanied by a remittance for the appropriate entry fee.
- The entrance fee shall be 30p for seniors and 15p for under 16's. (See note.)
- A junior shall mean a person under 16 years of age on 31st December, 1973.
- No exhibit which has previously won a bronze medal or higher award at any of the exhibitions promoted by this company shall be accepted for these Competitions. No model may be entered in more than one class.
- No entry shall be accepted from a professional model maker.
- The decisions of the judges shall be final.
- Competitors shall state on the entry form:
  - That exhibits are their own work and property.
  - Any parts or kits which were purchased or were not the outcome of their own work.
  - The origin of the design.
- Models will be insured for the period during which they are at the Exhibition and in transit to and from the Exhibition, provided they are adequately packed and the instructions regarding their dispatch are correctly observed.
- Model & Allied Publications Ltd., reserve the right to refuse any entry or model on arrival at the Exhibition and shall not be required to furnish any reason for doing so.
- Model & Allied Publications Ltd., reserve the exclusive rights to describe and photograph any models entered for competition or display and to make use of any such photograph or descriptions in any way they may think fit.
- Competitors will be issued with a free non-transferable Competitor's Pass to the Hall during the Exhibition.

#### COLLECTION

Models may be removed from the Hall between 7.0 p.m. and 10.0 p.m. on Saturday, January 12th; 10.0 a.m. and 4.0 p.m. on Sunday, January 13th, 1974.

ALL models MUST be removed by 10.0 a.m. on Monday, January 14th, 1974.

Competitors will be provided with a card authorising collection which MUST be presented.

Models cannot be reclaimed before the end of the exhibition.

### CLASS E. Power Driven Boat Models. (Complete with power plant). Scale or Freelance.

| Type                                           | Name                                        |
|------------------------------------------------|---------------------------------------------|
| 16 "Boy Lawrence" Wooden Steam Drifter         | William G. Kittle<br>(Farnborough, Hants.)  |
| 17 R/C electric powered motor boat "Bluebird"  | Richard J. Parkhouse<br>(Harpenden, Herts.) |
| 18 H.M.S. "Warspite"                           | Geoffrey Sumpter<br>(Cheltenham, Glos.)     |
| 19 Copy of "New Fawn"                          | Allen G. Knott<br>(Brentwood, Essex)        |
| 20 "Ashanti" Tribal Class Destroyer            | D. C. Brown<br>(Bedford Park, London)       |
| 21 M.F.V. Trawler                              | Roy Taylor<br>(Hutton, Essex)               |
| 22 Tug "Sun XXI"                               | Roy Taylor<br>(Hutton, Essex)               |
| 23 Stern Wheel Paddle Steamer Towing Show Boat | Peter Fairhurst<br>(Hastings, Sussex)       |
| 24 Steam Paddle Steamer                        | Harold V. Rothon<br>(Essex, CM0 9PZ)        |
| 25 Vosper R.T.T.L.                             | Alan Hart<br>(Orpington, Kent)              |
| 26 M.V. "Bardic Ferry"                         | Michael A. Beith<br>(Hatfield AL10 9SU)     |
| 27 Steam Picket Boat                           | N. C. Huggett<br>(Ruislip, Middx.)          |
| 28 Royal Yacht H.M.S. "Britannia"              | Clive Gretton<br>(London N.21)              |
| 29 Fairey Marine Fantome                       | Colin Spencer<br>(Bolton BL6 7DP)           |
| 30 Fairey Marine Super Swordsman               | Colin Spencer<br>(Bolton BL6 7DP)           |
| 31 Castle Class Corvette                       | C. Langston<br>(Hitchin, Herts.)            |
| 32 Radio Controlled Cabin Cruiser              | Gordon R. Bowd<br>(Nr. Sevenoaks, Kent)     |
| 33 Fishing Boat                                | Gordon R. Bowd<br>(Nr. Sevenoaks, Kent)     |
| 34 H.M.S. "Cossack" Tribal Class Destroyer     | Gordon R. Bowd<br>(Nr. Sevenoaks, Kent)     |
| 35 Canadian Pacific S/S Empress of England.    | John Norris<br>(Bristol 9)                  |
| 36 Vosper RAF Air sea rescue.                  | Ken Farr<br>(Clevedon, Somerset)            |
| 37 Vosper/Thornycroft Fast Patrol Boat.        | Norman Sidney James<br>(Clevedon, Somerset) |
| 38 RAF Air Sea Rescue Launch.                  | Alan Church<br>(Bristol)                    |
| 39 Cervia Thames Tug.                          | Bruce J. Fleet<br>(Kingswood, Bristol)      |
| 40 Tugboat Sea Challenge.                      | R. Harrison<br>(Bristol)                    |
| 41 RAF Crash Tender.                           | D. J. Abbott<br>(Luton, Beds)               |
| 42 M. S. Venus.                                | C. W. Lane<br>(St. Albans, Herts)           |
| 43 Sun XXI Tug.                                | T. Stagg<br>(Hardingstone, N'hants)         |
| 44 Steam Drifter.                              | A. J. Shillito<br>(Kings Langley, Herts)    |
| 45 Royal Yacht Britannia.                      | J. Brasset<br>(St. Albans, Herts)           |

### CLASS F. Sailing Ships of Any Period (Non-Working).

| Type                      | Name                                     |
|---------------------------|------------------------------------------|
| 1 Elizabethan Merchantman | William M. Wilson<br>(Carlisle, CA5 4RA) |
| 2 90 Gun Ship. C 1706     | W. F. Bayes<br>(London, W.10)            |

- |    |                                            |                                                 |
|----|--------------------------------------------|-------------------------------------------------|
| 3  | Greek Galley ca. 500 B.C.                  | Fred Bond<br><i>(Leeds, LS12 3QP)</i>           |
| 4  | The "Victory"                              | Ronald Ripley<br><i>(Billericay, Essex)</i>     |
| 5  | French Galley "La Reale" 1670              | E. P. Heriz-Smith<br><i>(Tunbridge Wells)</i>   |
| 6  | 17th Century Sixth Rate                    | Capt. K. M. Gosling<br><i>(Barnham, Sussex)</i> |
| 7  | H.M.S. "Victory"                           | Mrs. F. M. Guffick<br><i>(Romford, Essex)</i>   |
| 8  | Trading Ketch                              | Bernard Nee<br><i>(Henfield, Sussex)</i>        |
| 9  | Archibald Russell 4 masted Barque          | Robert J. Hawes<br><i>(Morden, Surrey)</i>      |
| 10 | "Revenge"                                  | Frank E. Allen<br><i>(Bickley, BR2 8AY)</i>     |
| 11 | Royal Dutch Yacht 1706                     | William A. Williams<br><i>(London, N.10)</i>    |
| 12 | Awaiting Entry Form                        |                                                 |
| 13 | H.M.S. "Dolfin" 12 gun Brig of War         | A. Edwards<br><i>(Edgware, Middx.)</i>          |
| 14 | Schooner 19th Century                      | Zygmunt Izycki<br><i>(Catford, London)</i>      |
| 15 | Miniature Sailing Ships                    | W. J. Evered<br><i>(Bracknell, Berks.)</i>      |
| 16 | Kiangsu Trader                             | T. W. Dickey<br><i>(Newtownabbey, N.I.)</i>     |
| 17 | 5.0.5 Racing Dinghy                        | D. Uialls<br><i>(London, S.E.24)</i>            |
| 18 | Clinker Built Work Boat                    | M. P. Horton<br><i>(Wokingham, Berks.)</i>      |
| 19 | "Granado" 1742 Model of English Bomb Ketch | R. A. Lightley<br><i>(Capetown, S. Africa)</i>  |
| 20 | Arab Dhow                                  | A. Macgill<br><i>(Wembley, Middx.)</i>          |
| 21 | Spritsail Barge                            | R. A. Parrett<br><i>(Luton, LU2 8BU)</i>        |
| 22 | Wasa Model ship.                           | David Crump<br><i>(Surrey RH5 5EE)</i>          |
| 23 | Victory Model ship.                        | David Crump<br><i>(Surrey RH5 5EE)</i>          |
| 24 | Skuldelev wreck III Knarr type.            | Antony J. Franks<br><i>(Edinburgh EH5 3AS)</i>  |
| 25 | Sea-going ship Egypt 5th dynasty.          | Fenton F. Robb<br><i>(London SW1)</i>           |
| 26 | Dutch State Yacht.                         | Fenton F. Robb<br><i>(London SW1)</i>           |
| 27 | Braeman.                                   | D. R. Anderson<br><i>(Bolton, Lancs)</i>        |
| 28 | Gravesend Watermans Wherry.                | Ewart C. Freeston<br><i>(Sussex BN27 4UG)</i>   |
| 29 | Hastings Lugger 'Industry'.                | M. Nye<br><i>(Shoreham, Sussex)</i>             |

**CLASS G. Working Yachts and Sailing Ships.**

- | Type                                   | Name                                           |
|----------------------------------------|------------------------------------------------|
| 1 Schooner<br>Foresail Topsail         | R. E. Baldwin<br><i>(Westminster, W10 4HH)</i> |
| 2 Half Decked Clinker Built Dinghy     | C. J. Spooner<br><i>(Brentwood, Essex)</i>     |
| 3 H.M.S. "Swiftsure" 1898<br>Waterline | Co. F. E. Guffick<br><i>(Romford, Essex)</i>   |
| 4 "Marie Sophie" Sailing Brig          | M. T. Davey<br><i>(Hove, BN3 4FS)</i>          |
| 5 Cornish Trading Smack                | S. Bunker<br><i>(Southwick, Sussex)</i>        |
| 6 Privateer Brig (Runnymede)           | F. Peason<br><i>(Pimlico, London)</i>          |
| 7 Bluenose Schooner                    | G. Bland<br><i>(Eastcote, Middx.)</i>          |

**Stand No. 26****SOUTHERN FEDERATION OF MODEL ENGINEERING SOCIETIES**

The objects of the SOUTHERN FEDERATION OF MODEL ENGINEERING SOCIETIES are the encouragement of all branches of Model Engineering by the friendly interchange of ideas and experience between Societies and promotion of mutual assistance and advice as appropriate.

The Federation pays particular attention to all aspects of Safety in the operation of passenger carrying model railways, methods of track construction and Society insurance cover. A list of active Model Engineering Societies is maintained for Southern England and a quarterly NEWS LETTER is circulated to Federated Societies, showing dates of open days or rallies organised by Members.

The Stand provides a focal point for visiting Model Engineers to discuss their problems with Members of Federated Societies who will be in attendance each day. Examples of model engineers' work will be on show and demonstrations given in the manufacture of smaller parts of model engines and locomotives, including production of miniature live steam injectors.

The handsome LBSC Memorial Trophy this year to be competed for by nearly a score of locomotives built to designs by "Curly."





Skeleton Clock 16 in. high with dead beat escapement by Mr. J. M. Wild of Sheffield.

#### Stand No. 38

#### NORTH LONDON SOCIETY OF MODEL ENGINEERS

This Society will have on its Stand a variety of models reflecting the wide interests of its members, which include live and stationary steam, a Club OO Layout (under construction), electric cars and model ships and boats. The display has been deliberately selected to show both simple and advanced work and, in addition, it is hoped to show some examples of work in progress and experimental work.

We are trying to get together a collection of unusual small tools and gadgets, and it is hoped to be able to demonstrate the use of some of these.

A number of models will be shown running under compressed air, and hot air engines of several types have been promised and will be working.

Photographs or slides of the Society's Headquarters at East Barnet, of its 2,400-ft. Loco Track at Colney Heath, its 100-ft. electric car track, and of other Society activities, will also be displayed.

The Society draws its members from a wide area of South Herts and North London, centring primarily on the London Borough of Barnet. Particulars of membership etc. can be obtained from 'gen sheets' available on the Stand or from the Hon. Secretary—M. RADFORD, 1, FARQUHAR STREET, BENGELO, HERTFORD.

#### CLASS G. Working Yachts and Sailing Ships.

| Type                                    | Name                                 |
|-----------------------------------------|--------------------------------------|
| 8 Waterwitch Naval Brig of 10 Guns 1832 | J. Mayger<br>(Tadworth, Surrey)      |
| 9 18" Clinker Built Dinghy.             | James Williams<br>(Horfield BS7 8QZ) |

#### CLASS H. Hydroplanes and Speedboats.

| Type                                                           | Name                               |
|----------------------------------------------------------------|------------------------------------|
| 1 "Windy" Off-shore & Endurance, Semi-scale Experimental Craft | P. B. Allen<br>(Bracknell, Berks.) |
| 2 Hydroplane "Gwyneth"                                         | A. F. Weaver<br>(Tregynon Mont)    |
| 3 10 cc Hydroplane.                                            | S. Robinson<br>(Bedford)           |

#### CLASS I. Miniatures. Length of hull not to exceed: 9 in. for $\frac{1}{8}$ in. to 1 ft. scale of larger; 10 in. for 1/16 in. scale; 12 in. for 1/25 in. scale; 15 in. for 1/32 in. scale. No limit for smaller scales.

| Type                            | Name                                     |
|---------------------------------|------------------------------------------|
| 1 Ramsgate Smack c.1900         | A. Garvey<br>(Roehampton, S.W.15)        |
| 2 Dutch Yacht 1678              | F. P. Heriz-Smith<br>(Tunbridge Wells)   |
| 3 Ship in a Bottle "Cutty Sark" | C. R. W. Howard<br>(Brentwood, Essex)    |
| 4 "Discovery"                   | D. Hunnisett<br>(Ayesbury, HP20 2PA)     |
| 5 "Irene" 18 Gun Dutch Brig     | D. Hunnisett<br>(Ayesbury, HP20 2PA)     |
| 6 "Good Hope Castle"            | H. G. Y. Lincoln<br>(Twickenham, Middx.) |
| 7 S.S. "Sarnia"                 | H. G. Y. Lincoln<br>(Twickenham, Middx.) |
| 8 H.M.S. "Hood" 1941            | N. Swales<br>(Doncaster, Yorks.)         |
| 9 Brave Swordsman               | Comm. F. R. Guffick<br>(Romford, Essex)  |
| 10 'Cutty Sark'.                | J. A. Evans<br>(Surrey CR4 7EL)          |

#### CLASS J. General Engineering Models (including Stationary and Marine Engines).

| Type                                               | Name                                                               |
|----------------------------------------------------|--------------------------------------------------------------------|
| 1 Steam Hammer on timber foundation.               | T. D. Walshaw<br>(Kendal, Westmorland)                             |
| 2 Diagonal Paddle engines Westbury design.         | F. J. Phillips<br>(Redruth, Cornwall)                              |
| 3 Stuart No. 9 Horizontal Stationary Steam engine. | R. Hobbs<br>(Sth. Woodford, E18)                                   |
| 4 Beam Engine.                                     | F. T. Smart<br>(Cambridge, CB1 4SH)                                |
| 5 Stuart No. 9 with governors and feed pump.       | F. T. Smart<br>(Cambridge, CB1 4SH)                                |
| 6 Steam Driven Block Setting Crane.                | M. E. Martin<br>(Ilford, Essex)                                    |
| 7 M.E. Water Cooled Vacuum Engine.                 | J. R. Wright<br>(London SE19)                                      |
| 8 Robinson Type Hot Air Engine.                    | G. R. Bowd<br>(Sevenoaks, Kent)                                    |
| 9 High Speed Marine Engine.                        | P. Arwar<br>(London SW16 16E)                                      |
| 10 Theseus Steam Engine.                           | A. Prior<br>(London SW17)                                          |
| 11 Single Column Beam Engine.                      | A. Walshaw<br>(Kendal, Westmorland)                                |
| 12 Hot Air Engines (2).                            | A. F. Weaver<br>(Tregynon, Mont.)                                  |
| 13 Compound Undertype Engine.                      | Ministry of Defence 2nd year apprentices<br>(Christchurch, Hants.) |

## 14 Marine Steam Engine.

J. Simpson  
(Chigwell, Essex)**CLASS K. Internal Combustion Engines.**

- Type*
- 1 5cc O.H.V. Four-stroke Petrol Engine. Own Design.
  - 2 Modified 10cc O.H.V. Dolphin Four-stroke Petrol Engine.
  - 3 Gnome 9 Rotary Aero Cylinder Engine.
  - 4 25cc O.H.C. Water Cooled Twin cylinder, Four-stroke Petrol Engine.
  - 5 3½cc S.V. Engine.
  - 6 4cc Four-cylinder O.H.V. Petrol Engine.
  - 7 45cc Gas/Petrol engine.

*Name*

N. W. B. Portlock  
(Hammersmith W6 0PA)  
N. W. B. Portlock  
(Hammersmith W6 0PA)  
L. W. Chenery  
(Edgware HA8 5BH)  
G. Punter  
(Newhaven, Sussex)  
  
L. C. Mason  
(Winchmore Hill N21)  
L. C. Mason  
(Winchmore Hill N21)  
L. P. Wood  
(Clevedon, Somerset)

**CLASS L. Mechanically Propelled Road Vehicles (including tractors).**

- Type*
- 1 'Minnie' Traction Engine
  - 2 E.R.A. Racing Car, 'B' Type.
  - 3 'Miller' Indianapolis Car.
  - 4 4" scale 'C' type Foden 6 ton steam wagon.
  - 5 Edinburgh Corpn Train (1922)

*Name*

P. A. King  
(Shepperton TW17 0RR)  
A. F. Weaver  
(Tregynon, Mont.)  
A. F. Weaver  
(Tregynon, Mont.)  
Terry Morris  
(Seisdon WV5 7HE)  
C. C. Cornell  
(Wheatthampstead, Herts.)

**CLASS N. Tools and Workshop Appliances.**

- Type*
- 1 Small Drilling Machine and Chuck.
  - 2 Sprocket Puller.
  - 3 Group of Workshop Equipment.
  - 4 Cutter Grinder.
  - 5 Small Precision Lathe Ancillaries.
  - 6 Lathe Accessories.
  - 7 Horizontal Miller and Jig Borer.
  - 8 Quick change centre lathe tool post.

*Name*

J. C. Stevens  
(Ealing W5)  
P. Arwar  
(London SW16)  
G. H. Thomas  
(New Milton BH25 5JR)  
W. C. J. Truscott  
(Perranporth, Cornwall)  
A. F. Weaver  
(Tregynon, Mont.)  
S. H. Willetts  
(Lydney, Glos.)  
L. G. Colyer  
(Bristol BS3 2RL)  
J. Pickett  
(Malvern, Worcs)

**CLASS O. Engineering Scale Models (Non-Working).**

- Type*
- 1 Styling Idea for an Austin 1300/1500.
  - 2 T.34 A.R.V. Recovering Ditched T.34.
  - 3 A.V.R.E. with type 2 S.B.G. equip. T.2 A.R.V.
  - 4 Formula 1 Racing Car.
  - 5 Electric Bench Drill & Engineers' Vice.
  - 6 Apollo Lunar Module.
  - 7 A Collection of 5 model fire appliances.
  - 8 Land Rover Special.
  - 9 3 Veteran Cars.
  - 10 350hp Sunbeam Record Car.

*Name*

G. M. Ogg  
(London SW9)  
D. C. Cross  
(Harpندن AL5 4HN)  
D. C. Cross  
(Harpندن AL5 4HN)  
M. Johnson  
(Hindhead, Surrey)  
Lt. Col. G. M. Edye  
(Isle of Man)  
G. Pimm  
(Timperley, Cheshire)  
I. Scott  
(Hazlemere HP15 7SX)  
G. Cassey  
(Watford, Herts.)  
N. Sharpe  
(Hinckley, Leics.)  
A. F. Weaver  
(Tregynon, Mont.)

## Stand No. 41

**THE INTERNATIONAL PLASTICS MODEL SOCIETY**

The Society, universally known as I.P.M.S., was formed 10 years ago when a group of enthusiasts banded together to exchange information about building, and improving, plastic models from the kits which were then appearing in increasing numbers.

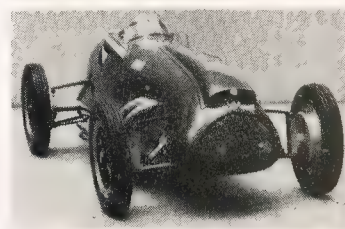
Now the Society has worldwide membership even including members in Eastern European countries. The official magazine of the Society published monthly is now starting Volume II, and many other Branches of the Society produce their own excellent magazines to help our prime aim, to communicate among ourselves.

This does little to help us communicate with non-members, but where better can there be than to set up our stall in that supreme gathering of the enthusiasts who appreciate individual craftsmanship at the Model Engineering Exhibition.

We have been proud to be among the Exhibitors for five years, and each time we try to show something to help visitors appreciate what can be done to a commercial plastics kit to turn it into the artistry of a display of craftsmanship. We hope we succeed. This year, besides our usual display of models we will again show how various jobs are tackled, and within the scope of staffing our stand from a membership who, possibly reluctantly, have to leave their models to earn a living, building models from plastics sheet etc., Air brush techniques, will be on display. Our members will be pleased to answer your questions, and a selection of Society publications will be on the stand.

Branches of the Society meet in many parts of the country, and new Branches are forming all the time. Join us and find a hobby within everyone's scope.

Cooper-Bristol Racing Car entered by Mr. Arthur Weaver, who will be well-known to model cable-racing enthusiasts in the late forties.



## Stand No. 40

**THE SOCIETY OF MODEL AERONAUTICAL ENGINEERS**

Is the world's senior model flying organisation having been founded in 1922 from other groups of model flying enthusiasts dating back to the early years of the century.

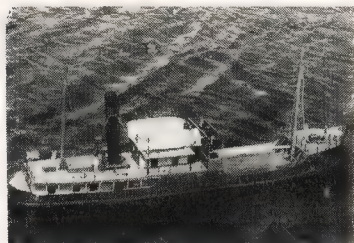
Illustrated on the S.M.A.E. stand will be some of the many activities that the Society promotes and encourages.

All forms of model flying are catered for in its programme ranging from "Junior" kit model contests up to Multi-channel Radio Controlled scale models worth many hundreds of pounds.

S.M.A.E. is responsible for the National Championships held each year at which an extensive programme of contests is flown off and which attracts not only members of the Society but many model enthusiast participants from all over the world.

Literature and membership details will be available on the stand.

NEW FAWN inter-island steamer built by Mr. A. G. Knott of Brentwood.



M. V. ARCADIAN modern cargo liner — a "board room model" built for Ellerman City Lines by Mr. S. R. C. Walmsley, Liverpool.



- |    |                                  |                                   |
|----|----------------------------------|-----------------------------------|
| 11 | Cooper-Bristol Racing Car.       | A. F. Weaver<br>(Tregynon, Mont.) |
| 12 | 'P' type M.G. Sports Car.        | A. F. Weaver<br>(Tregynon, Mont.) |
| 13 | 'B' type London General Omnibus. | J. Darlington<br>(Ryde, I.O.W.)   |

**CLASS P. Scenic and Representational Models  
(including Architecture).**

- | Type                                                                       | Name                                  |
|----------------------------------------------------------------------------|---------------------------------------|
| 1 'Outskirts of Town' (circa 1950).                                        | Roy Tassell<br>(Bicknoller, Somerset) |
| 2 Architectural model of warehouse recently completed in Corby, Northants. | R. T. Chapman<br>(Watford WD1 5DS)    |
| 3 Pair of Roundabouts in bottles, magnetic working.                        | R. F. C. Bartley<br>(Bristol)         |
| 4 English Farm Wagon.                                                      | V. B. L. Miles<br>(Aylesbury, Bucks.) |
| 5 Historic buildings—Christmas steps in Bristol.                           | R. F. C. Bartley<br>(Bristol)         |

**CLASS Q. Horological, Scientific and Optical apparatus.**

- | Type                                                          | Name                                     |
|---------------------------------------------------------------|------------------------------------------|
| 1 Ting-Tang Quarters Bracket Clock.                           | L. Sowerby<br>(London SE21 8NH)          |
| 2 Skeleton Regulator Clock to a design by Claude Reeve.       | Bernard Miller<br>(E. Preston, Sussex)   |
| 3 'One at the Hour' Skeleton Clock with dead beat escapement. | J. M. Wild<br>(Sheffield S8 8BP)         |
| 4 One-year Skeleton Clock.                                    | C. B. Reeve<br>(Hastings)                |
| 5 One-year Skeleton Clock.                                    | C. B. Reeve<br>(Hastings)                |
| 6 Chiming Bracket Clock.                                      | Brian Frost-Smith<br>(Penrith, Cumbs.)   |
| 7 6 x 6cm Transparency Slide Projector.                       | W. L. Rowson<br>(Wainfleet, Lincs.)      |
| 8 Electric Clock.                                             | Michael E. Martin<br>(Ilford, Essex)     |
| 9 Dover Castle Turret Clock $\frac{1}{3}$ scale.              | V. Hotchkiss<br>(Egham TW20 9BH)         |
| 10 8-day regulator clock                                      | J. H. Wilding<br>(Billingshurst, Sussex) |

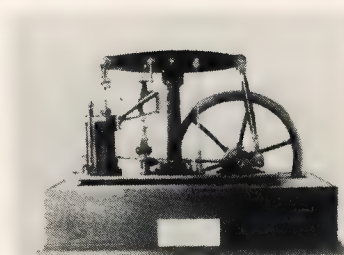
**CLASS R. General Craftsmanship not otherwise classified.**

- | Type                                                         | Name                                    |
|--------------------------------------------------------------|-----------------------------------------|
| 1 Bench with Engineering Tools and Instruments.              | K. W. Burton<br>(Ilford, Essex)         |
| 2 Horse Drawn Early English Mail/ Passenger Coach.           | G. M. Waugh<br>(Sunderland SR4 9RQ)     |
| 3 13th Century Sword & Scabbard.                             | D. Houghton<br>(Hatfield, Herts.)       |
| 4 Hospital Theatre Operating Table.                          | Lt. Col. G. M. Edye<br>(Isle of Man)    |
| 5 Vintage Alfa Romeo Car.                                    | G. M. Waugh<br>(Sunderland, Co. Durham) |
| 6 Honda 750cc Racer, Honda DAX Scooter and Honda 750cc Bike. | G. M. Waugh<br>(Sunderland, Co. Durham) |
| 7 Three Antique Pocket Pistols.                              | J. Hodges<br>(Chiswick W4)              |
| 8 Walker Colt 1848 Pistol Replica.                           | R. D. Houghton<br>(St. Albans AL3 5PZ)  |
| 9 Suffolk Farm Cart.                                         | G. Blackman<br>(Watford, Herts.)        |
| 10 'Ornamentally Turned' Brass Candlestick.                  | T. D. Walshaw<br>(Kendal, Westmorland)  |
| 11 Austin 7 Chummy.                                          | D. J. Cooper<br>(N. Oxford)             |
| 12 1851 Colt Navy Revolver.                                  | J. N. Allen<br>(Whitley Bay NE26 4HH)   |

- |    |                                                          |                                        |
|----|----------------------------------------------------------|----------------------------------------|
| 13 | Handtools 3½ Myford Lathe,<br>Drilling Machine.          | A. F. Weaver<br>(Newtown, Mont.)       |
| 14 | Chess Set.                                               | A. Prior<br>(London SW17)              |
| 15 | One set of Miniature Scenes and<br>Ships in Bottles, 13. | R. F. C. Bartley<br>(Westbury-on-Trim) |

**CLASS S For any type of model or mechanical work by a junior under the age of 16 by 31st December, 1973.**

- | Type                                                           | Name                                         |
|----------------------------------------------------------------|----------------------------------------------|
| 1 Half Timbered Cottage.                                       | M. Phillips & F. Lozano<br>(Bexhill, Sussex) |
| 2 Engineer of the Guard N.C.O. At<br>Ease.                     | M. J. Davis<br>(Shirley CRO 8RF)             |
| 3 'Confusion at Ticonderoga'.                                  | J. S. Myerson<br>(Chelsea SW3)               |
| 4 'The Calm After The Storm'.                                  | J. S. Myerson<br>(Chelsea SW3)               |
| 5 'Demon' Multi/Sport Boat.                                    | R. Hunt<br>(Kaxby YO3 8IP)                   |
| 6 A Week's Supply.                                             | A. G. Gregory<br>(New Barnet EN5 1NE)        |
| 7 After The Rain.                                              | K. Malyan<br>(Tooting SW17 7PH)              |
| 8 Telectra Semi-scale Boat.                                    | S. Walsh<br>(London NW10)                    |
| 9 Type 9 U-Boat.                                               | P. Walsh<br>(London NW10)                    |
| 10 8mm in Russia.                                              | K. Malyan<br>(Tooting SW17 7PH)              |
| 11 Scammell and Churchill.                                     | K. Malyan<br>(Tooting SW17 7PH)              |
| 12 Conference at the Front, Europe<br>1944.                    | M. E. Pretious<br>(Brentwood CM13 2PP)       |
| 13 'North Africa 1942'.                                        | A. Cowles<br>(Brentwood CM13 3NJ)            |
| 14 Officers Consulting                                         | R. Hewitt<br>(Romsey SO5 0BL)                |
| 15 'Preparations'.                                             | P. T. Vickers<br>(Petersfield, Hants.)       |
| 16 Europe 1944.                                                | P. White<br>(S. Chingford E4)                |
| 17 88mm Gun and Tractor.                                       | P. White<br>(S. Chingford E4)                |
| 18 Messaschnitzel 109.                                         | S. E. Walker<br>(Waltham Cross<br>EN7 5JN)   |
| 19 Warship.                                                    | S. E. Walker<br>(Waltham Cross<br>EN7 5JN)   |
| 20 Douglas DC-3 Dakota.                                        | G. N. Hulme<br>(Hayes UB3 3AW)               |
| 21 Boeing B17 Flying Fortress.                                 | G. N. Hulme<br>(Hayes UB3 3AW)               |
| 22 'Three Wounded Soldiers'.                                   | S. Redington<br>(Westminster SW1)            |
| 23 Soldier on a Rock 1811. Lancer<br>and French Line Infantry. | S. Redington<br>(London SW1)                 |
| 24 BMW Motor Cycle Combination<br>1939.                        | A. C. Field<br>(Newbury, Berks.)             |
| 25 Jagdpanther 1944.                                           | A. C. Field<br>(Newbury, Berks.)             |
| 26 Dingo Scout Car 1942.                                       | S. J. Field<br>(Newbury, Berks.)             |
| 27 Willys Jeep.                                                | S. J. Field<br>(Newbury, Berks.)             |
| 28 A Mameluke Kettle-drummer.                                  | N. Infield<br>(London SW15)                  |
| 29 'Organised Resistance at Pader-<br>borne 1945'.             | I. G. Craig<br>(Salisbury SP1 3RH)           |



Beam Engine, 1 in. scale, Sanderson's, circa 1846 by Mr. F. T. Smart of Cambridge.

**Stand No. 44**

**BRITISH MODEL SOLDIER SOCIETY**

The Society's stand will display items covering the whole field of military modelling, figures, guns, vehicles, tanks and other equipment, in a variety of scales. In addition to examples of work contributed by a number of Area Groups, there will be opportunities to see pieces that have been prominent in the Society's competitions during the past year, dioramas, groups of figures and equipment, and items drawn from the National Collection of the B.M.S.S.

A popular feature of our display at the 1973 Model Engineer Exhibition was the demonstration of various skills and techniques relevant to military modelling, such as soldering, animation, conversion, painting etc., and we intend to include this type of active demonstration at the 1974 Exhibition. We propose to present as comprehensive a cross section of the activities of the Society as possible, bearing in mind its many facets and contributory interests, military history, the study of uniforms, prints, A.F.V.'s and the like.

We shall extend a genuine welcome to all visitors to the M.E.E., and invite them to call at our stand where we shall do our best to answer queries and offer advice relevant to this fascinating hobby.

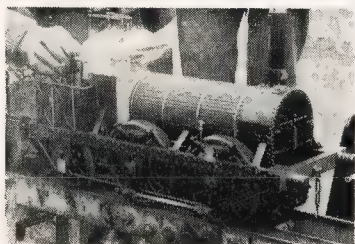
# MODEL YACHTING ASSOCIATION

There are approximately 50 active Clubs in the country, the members of which are always willing to help a novice to partake in this interesting hobby, age is immaterial, successful skippers are to be found from 15 to 75 years young.

Model sailing yachts most commonly sailed under M.Y.A. rules are Marbleheads 50 in. long up to 24 lbs. displacement, 10-raters up to 80 in. long and 35 lbs. displacement, and fewer 'A' class boats up to 80 in. long and 60 lbs. displacement. These classes can be sailed free with vane automatic steering or under radio control.

Organisation is split into five district, Metropolitan and Southern, Eastern, South Western, Midland and Northern. Each area has its own Secretary and Racing Programme.

Mr. M. H. Cox's 5 in. gauge TITFIELD THUNDERBOLT a contender for this year's LBSC Memorial Bowl.



- |    |                                                           |                                         |
|----|-----------------------------------------------------------|-----------------------------------------|
| 30 | Panzer III German Medium Tank.                            | F. Gray<br>(Orpington, Kent)            |
| 31 | Brumbar.                                                  | F. Gray<br>(Orpington, Kent)            |
| 32 | PZK PFW IV Flak Tank.                                     | F. Gray<br>(Orpington, Kent)            |
| 33 | KV1 Russian Heavy Tank.                                   | F. Gray<br>(Orpington, Kent)            |
| 34 | Sturmgeschütz III German Assault Gun.                     | F. Gray<br>(Orpington, Kent)            |
| 35 | Japanese Officer World War II.                            | F. Gray<br>(Orpington, Kent)            |
| 36 | 1½" Marshall Agricultural Engine 'Prince'.                | C. P. Gerrard<br>(Bournemouth BH5 15Q)  |
| 37 | SE5 Biplane.                                              | M. Lovitt<br>(Hanworth, Middx.)         |
| 38 | Fokker F.VIIb—3m.                                         | J. R. Kingshott<br>(Camberley, Surrey)  |
| 39 | Flying Aluminium Control-line Model.                      | J. G. Dickison<br>(Farnborough, Hants.) |
| 40 | Control-line Stunt Model.                                 | J. G. Dickison<br>(Farnborough, Hants.) |
| 41 | Stuart 7a Engine.                                         | A. C. Norman<br>(Warrington WA3 4NY)    |
| 42 | Meurs Lochon! 1st Regiment Dutch Lancers.                 | P. Wallace<br>(Frome, Somerset)         |
| 43 | A French Foot Grenadier.                                  | N. Infield<br>(London SW15)             |
| 44 | Carabiniers Kettle-drummer.                               | N. Infield<br>(London SW15)             |
| 45 | Sopwith Camel.                                            | T. J. Hubble<br>(Greenford, Middx.)     |
| 46 | Avro Lancaster.                                           | T. J. Hubble<br>(Greenford, Middx.)     |
| 47 | Handley Page Halifax.                                     | T. J. Hubble<br>(Greenford, Middx.)     |
| 48 | 6th French Hussar Elite Company.                          | A. Hope<br>(Rochester, Kent)            |
| 49 | Panther Tank in France 1944.                              | A. Hope<br>(Rochester, Kent)            |
| 50 | 'Summer Offensive' (Russia).                              | S. J. Head<br>(Reigate, Surrey)         |
| 51 | Two French Chasseurs in Cheval.                           | D. Goodes<br>(Eltham SE9)               |
| 52 | Ford Class Seaward Defence Vessel.                        | J. Abbott<br>(Hornchurch)               |
| 53 | Ford Class Seaward Defence Vessel—Plastic and Plasticine. | Elaine Hayes<br>(Dagenham)              |
| 54 | A.P.S. Mini Comet.                                        | J. C. Trubridge<br>(Winchester)         |
| 55 | Sea Hornet.                                               | J. C. Trubridge<br>(Winchester)         |
| 56 | Steam Canal Inspection Launch.                            | R. A. Knapp<br>(London)                 |
| 57 | Gendarmes.                                                | S. Redington<br>(Westminster)           |
| 58 | Junkers 88 Night Fighter.                                 | S. A. Ray<br>(Bourne, Lincs.)           |
| 59 | Focke-Wulf 190A.                                          | S. A. Ray<br>(Bourne, Lincs.)           |
| 60 | 'Into Attack' Diorama.                                    | C. E. Monk<br>(Orpington)               |
| 61 | Sturmgeschütz 4.                                          | D. Reay<br>(Harlow)                     |
| 62 | PZK PFW III.                                              | P. R. Tanner<br>(Orpington)             |
| 63 | S.U. 100 (R.T.D.).                                        | P. R. Tanner<br>(Orpington)             |
| 64 | Diorama/Stug 3, Hanmag, BMW R 75.                         | P. R. Tanner<br>(Orpington)             |
| 65 | Tamiya Flak 36 and Sd.Kfz 7.                              | A. H. Freeborn<br>(Orpington)           |

- |    |                                                      |                                               |
|----|------------------------------------------------------|-----------------------------------------------|
| 66 | Speed Boat.                                          | P. C. Clarke<br>(London W6)                   |
| 67 | Meccano Traction Engine and Thresher.                | N. Ferneyhough<br>(Abingdon)                  |
| 68 | 1st World War—Flanders Scene.                        | B. Shambrook<br>(Ilford)                      |
| 69 | 'The Last Stand', Grenadiers at Waterloo.            | R. Plaszczymaka<br>(Horsham)                  |
| 70 | Focke-Wulf FW190 F-8.                                | N. T. Corduroy<br>(Stockport)                 |
| 71 | Mitsubishi.                                          | N. T. Corduroy<br>(Stockport)                 |
| 72 | Hawker Hunter.                                       | I. Prescott<br>(Fleet)                        |
| 73 | Two figures—Gren. French and Private 81st Foot.      | D. Verbiest<br>(Macduff)                      |
| 74 | Ford Class Seaward Defence Vessel.                   | S. Warwick<br>(Chadwell Heath)                |
| 75 | 17th Century Pikeman.                                | A. Dewhurst<br>(London N4)                    |
| 76 | Revolutionary Troops, Paris 1794.                    | A. Dewhurst<br>(London N4)                    |
| 77 | Cabin Cruiser.                                       | R. Allen<br>(Rickmansworth)                   |
| 78 | Chieftain Tank.                                      | P. Williams<br>(Bedford)                      |
| 79 | Fairey Swordfish.                                    | T. Waller<br>(Cookham Rise)                   |
| 80 | 'Surprise Attack'.                                   | M. Lawson<br>(Banstead)                       |
| 81 | Russian T34 Tank.                                    | L. Garnett<br>(Gravesend)                     |
| 82 | Battlefield.                                         | L. Garnett<br>(Gravesend)                     |
| 83 | Freelance M.T.B.                                     | P. Field<br>(Fleet)                           |
| 84 | 8 ton semi-track camouflaged with bullet torn glass. | D. Rainsford<br>(Shepton Mallet, Som)         |
| 85 | Pzkwf III with 1 crew member.                        | D. Rainsford<br>(Shepton Mallet, Som)         |
| 86 | Kuselwagen crew of 3.                                | D. Rainsford<br>(Shepton Mallet, Som)         |
| 87 | Yaker (Glider).                                      | N. Diamond<br>(Camberwell SE5)                |
| 88 | Robot (R/C model).                                   | N. Diamond<br>(Camberwell SE5)                |
| 89 | Power Sawing Machine.                                | C. Bowerman & S. Hazel<br>(S. Ruislip, Middx) |
| 90 | Stuart No. 1 engine.                                 | K. J. Fleet<br>(Ruislip, Middx)               |
| 91 | Stuart 7a engine.                                    | B. Hermiston<br>(S. Ruislip, Middx)           |
| 92 | Stuart No. 10 engine, vertical coal fired boiler.    | C. Leivers<br>(S. Ruislip, Middx)             |
| 93 | Stuart 'Sirius' marine engine (twin cylinder).       | B. Stone<br>(S. Ruislip, Middx)               |

## TRAMWAY AND LIGHT RAILWAY SOCIETY

The Society has been in active existence since 1938 and caters for these interested in the subject of tramways. One of the main sections of the Society is the Model Engineering Section and it is acknowledged that models constructed by our members are some of the finest so far built. Many of these models are displayed in operation on the layout and represent a good selection of the many cars built by our members.

All trackwork has been constructed in the workshop of one of our members as also the overhead equipment. The models are built to a scale of  $\frac{3}{4}$  in. to 1 ft. and the track gauge is  $3\frac{1}{2}$  in. Working voltage is 24 and they are equipped for operation on the overhead wire method of current collection. Models on show are representative of London, Manchester, Belfast, and many other British systems.

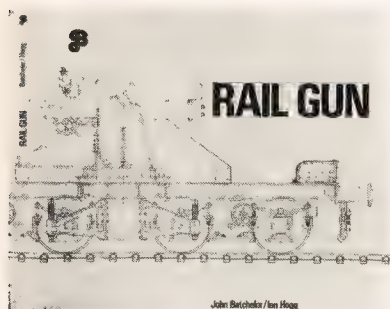
Our layout is operated at this exhibition by two operators — one at each end who control the current in the wire of the car coming towards them. The overhead is suitably divided into sections and these are switched in and out by the operator as required.

## CLASS AA. (a) Flying models of all types; (a) free flight, (b) control-line and (c) radio control.

- | Type                           | Name                                      |
|--------------------------------|-------------------------------------------|
| 1 'Free Flight Powered Model'. | James Challis<br>(Earl Shilton, Leics.)   |
| 2 Radio Control Helicopter.    | Kenneth Sinfield<br>(Northampton NN6 0BQ) |
| 3 All Sailplane.               | Martin Dilly<br>(West Wickham, Kent)      |
| 4 'Stringalong' Biplane.       | M. J. Upton<br>(London, W.3.)             |

Three reproduction antique pocket pistols from solid bar, hardened and polished. Made by John Hodges of Chiswick.





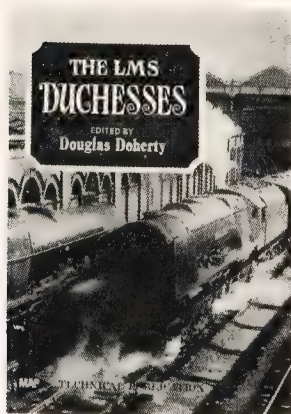
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### CLASS AB. Scale flying models of all types, rubber glider, power, control-line or radio control.

| Type                             | Name                                       |
|----------------------------------|--------------------------------------------|
| 1 D.H. 60X Hermes Moth           | M. S. F. Staples<br>(Cambridge, CB5 8LT)   |
| 2 VGO III 3 engine German bomber | P. W. Lee<br>(London N8 8QU)               |
| 3 1909 Antoinette Monoplane      | P. W. Lee<br>(London N8 8QU)               |
| 4 Vought F4U-2 Corsair           | A. W. Manley<br>(London S.E.23)            |
| 5 Westland Wapiti IIa            | Victor F. Driscoll<br>(St. Albans, Herts.) |
| 6 A.B.C. Robin                   | John Blagg<br>(Hatfield, Herts.)           |
| 7 Bristol Type 91 Brownie        | John Blagg<br>(Hatfield, Herts.)           |
| 8 Bristol Bulldog                | Victor F. Driscoll<br>(St. Albans, Herts.) |
| 9 R/C Boeing B-17G Fortress      | A. J. Briggs<br>(Tadworth, Surrey)         |
| 10 Vickers FB5 Gunbus            | Brian M. Knock<br>(London SW4 9RY)         |

### CLASS AC. Scale non-flying models.

| Type                                          | Name                                      |
|-----------------------------------------------|-------------------------------------------|
| 1 Bristol F2B.                                | George Pimm<br>(Cheshire WA15 6XH)        |
| 2 BAL Jaguar.                                 | George Pimm<br>(Cheshire WA15 6XH)        |
| 3 RAAF F-4E Phantom II.                       | Keith R. H. Goffin<br>(Sussex BN27)       |
| 4 Luftwaffe—1946 (A wrecked German Plane).    | Antony Michael Ward<br>(London E11 2RE)   |
| 5 Short 'Scylla' L.17.                        | P. W. Lee<br>(London N8 8QU)              |
| 6 D.H. 60 GIII Moth Major.                    | A. F. Woollett<br>(Wokingham, Berks.)     |
| 7 Bristol M.I.D.                              | A. F. Woollett<br>(Wokingham, Berks.)     |
| 8 B.A. Swallow 2.                             | A. F. Woollett<br>(Wokingham, Berks.)     |
| 9 Short 184 Seaplane.                         | Stephen F. Newman<br>(Coulson, Surrey)    |
| 10 RF-4E Phantom II.                          | Melvyn James Bromley<br>(Sussex RH10 2AL) |
| 11 Grumman F8F 2 'Bearcat'.                   | David Prescott<br>(London SE22)           |
| 12 Beagle 206 S.                              | Mr. K. Wagner<br>(Surrey GU15 3TN)        |
| 13 1/48th De Havilland 2.                     | Cyril Leathers<br>(Ardglass, Co. Down)    |
| 14 Hawker Tomtitof (RAF 1928).                | George M. Waugh<br>(Sunderland, Durham)   |
| 15 Bristol Blenheim Mk. I of 114(B) Squadron. | Michael Thomas Moore<br>(Bromley BR1 5PG) |
| 16 Sabre F-86F.                               | Kenneth Fisher<br>(Acton W3 6EX)          |
| 17 Bristol 138.                               | J. R. Carter<br>(Reading, Berks.)         |
| 18 Bell UH-ID Huey.                           | John Carter<br>(Reading, Berks.)          |
| 19 McDonnell RF-101C Voodoo.                  | Tony Bourke<br>(London NW2 6PN)           |
| 20 Hawker Fury.                               | Tony Bourke<br>(London NW2 6PN)           |
| 21 Grumman Hellcat F6F-3/5.                   | Tony Bourke<br>(London NW2 6PN)           |
| 22 Boulton Paul Defiant Mk. I.                | Clive B. Hall<br>(Cambridge CB3 7SS)      |
| 23 Heinkel He 100D.                           | Clive B. Hall<br>(Cambridge CB3 7SS)      |

- |    |                                   |                                             |
|----|-----------------------------------|---------------------------------------------|
| 24 | Hellcat.                          | William A. Nicholls<br>(Birmingham B12 8AS) |
| 25 | Demosele.                         | Wilfred J. Evered<br>(Bracknell, Berks)     |
| 26 | BF 109E.                          | John Waller<br>(Berks. SL6 9HW)             |
| 27 | D. & H. 82A Tiger Moth N90406.    | Brian M. Knock<br>(London SW4 9RY)          |
| 28 | Supermarine Walrus.               | John Waller<br>(Berks. SL6 9HW)             |
| 29 | Aichi E13a1B.                     | N. T. Corduroy<br>(Stockport SK4 2JF)       |
| 30 | Mitsubishi T2M3 Raiden.           | N. T. Corduroy<br>(Stockport SK4 2JF)       |
| 31 | F086F Sabre.                      | Mick Philpot<br>(Cookham, Berks.)           |
| 32 | Messerschmitt 262A2a.             | Mick Philpot<br>(Cookham, Berks.)           |
| 33 | Hawker Typhoon IB.                | Mick Philpot<br>(Cookham, Berks.)           |
| 34 | Hercules RAF Air Support Command. | C. Burchell<br>(Sutton Coldfield)           |
| 35 | Ford Trimotor.                    | G. F. Wright<br>(Sutton Coldfield)          |

**CLASS MA. Diorama. Competition for Diorama composition for any type or size of figures or scenery to be of Military, Naval or Air Force character.**

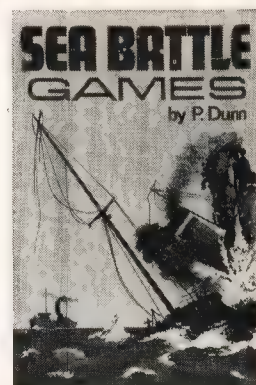
- | Type                                                                    | Name                                      |
|-------------------------------------------------------------------------|-------------------------------------------|
| 1 French Napoleonic bivouac.                                            | A. Jeffryes<br>(Bedford Park W4 10V)      |
| 2 Panzer in Russland.                                                   | C. L. Staples<br>(Cambridge CB5 8LT)      |
| 3 'Just Point it That Way'.                                             | D. Sarney<br>(Sutton, Surrey)             |
| 4 Schlacht Nachernte France 1944.                                       | D. J. Hubbard<br>(Burgess Hill, RH15 9HF) |
| 5 Russian Farmhouse Russia 1943.                                        | D. J. Hubbard<br>(Burgess Hill, RH15 9HF) |
| 6 The Photographer.                                                     | D. Harvey<br>(Portsmouth, Hants.)         |
| 7 'Where Did You Say We Are?'.                                          | D. Harvey<br>(Portsmouth, Hants.)         |
| 8 Mined. Two Models with Soldiers of World War II.                      | G. Scott<br>(Darlington, Co. Durham)      |
| 9 Panzer IV, Winter '42.                                                | J. A. Barry<br>(Bushey, Herts.)           |
| 10 Various World War II German A.F.V.'s and Figures on a Diorama.       | S. Uden<br>(London SE3 7DR)               |
| 11 Ardennes, Winter 1944.                                               | R. Galuszka<br>(Sevenoaks TN14 5EE)       |
| 12 'Ambush' Tamiya BMW R75.                                             | J. W. Jeffrys<br>(Gillingham, Kent)       |
| 13 Move South. Two Churchill A.V.R.'s moving down a road.               | M. Orsbourn<br>(Goudhurst, Kent)          |
| 14 Move South. Two A.V.R.E. moving down a road with scenery both sides. | M. Orsbourn<br>(Goudhurst, Kent)          |
| 15 The Engine Is Kaput Oberleutnant.                                    | A. Disdale<br>(Wembley, Middx.)           |
| 16 A Harley Davidson.                                                   | A. Disdale<br>(Wembley, Middx.)           |
| 17 Sturmgeschütz III Moving up.                                         | B. W. Barry<br>(Bushey, Herts.)           |
| 18 'Pour La France'. Maquis Incident, France 1944.                      | J. Wright<br>(Reading RG3 3NN)            |
| 19 French Farm, Normandy 1944.                                          | T. Addison<br>(Fleet GU13 8NT)            |
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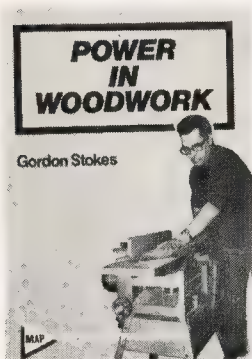


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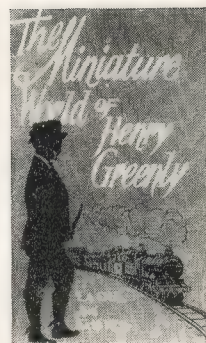
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- 30 An Eye for an Eye. A whole  
village.  
J. D. C. Hale  
(Gainsborough, Lincs.)
- 31 'Afrika Korps'.  
Susan Carfrae  
(Wembley, Middx.)
- 32 Skirmishers Cover.  
R. Dixon  
(Buckhurst Hill, Essex)
- 33 'Defended Position'.  
K. Fisher  
(Acton W3 6EX)
- 34 Russian Front 1943.  
R. K. Smith  
(Bath BA1 2BN)
- 35 British Man 'O' War c 1810 Gun  
Deck.  
A. Garvey  
(Roehampton SW15)
- 36 Russian Front 1943 Summer.  
G. Finch  
(Sydenham SE26)
- 37 'The Straggler'. Scots Grey.  
G. Finch  
(Sydenham SE26)
- 38 August 1914.  
S. Ellis  
(Henley-on-Thames)
- 39 Poitiers Cameleers Moorish Army  
A.D. 732.  
M. T. Moore  
(Bromley BR1 5PG)
- 40 United We Stand. French Old  
Guard.  
G. Jones  
(Worcester WR2 5JB)
- 41 Normandy Supply Line 1944.  
London Group Miniature  
Armoured Fighting  
Vehicle Association  
(SW17)
- 42 Russian Winter '42.  
G. Finch  
(Sydenham SE26)
- 43 Gefallen in Krieg.  
J. R. B. Edwards  
(Camberley, Surrey)
- 44 Tea Break 1863. A.C.W. Artillery-  
men.  
M. W. Mayes  
(Lewisham SE13)
- 45 So Near Yet So Far.  
M. Bonest  
(London EC3)
- 46 'The Greys and the Gordons' at  
Waterloo.  
C. E. Hancock  
(Enfield, Middx.)
- 47 To Capture an Eagle.  
G. K. Reynolds  
(Bakewell, Derbys.)
- 48 R.E.M.E. Retreat before Rommel.  
B. J. Sharman  
(Southampton)  
SO3 4FW)
- 49 Eastern Front 1943.  
R. F. Hawkes  
(Langley, Bucks.)
- 50 Kaminsky Dirlwanger Brd's.  
R. G. McFarlane  
(Troon, Ayrshire)
- 51 Scene of Heavy-Vehicle Break-  
Down.  
B. J. Sharman  
(Southampton)
- 52 The Eve of Wagram.  
D. Hockey  
(Palmer's Green N13)
- 53 Action Support.  
M. Lawson  
(Banstead, Surrey)

- |    |                                                                  |                                       |
|----|------------------------------------------------------------------|---------------------------------------|
| 54 | Lull in the Battle. Various Tamiya.                              | M. Lawson<br>(Banstead, Surrey)       |
| 55 | A Charge. Polish Lancers and Retreating Prussian (Leipzig 1813). | C. K. Legg<br>(Taunton, Somerset)     |
| 56 | 'Scotland Forever'.                                              | J. D. Wilmshurst<br>(Maidstone, Kent) |
| 57 | 'Conflict at Arnheim'.                                           | D. Rippin<br>(Branston, Lincoln)      |
| 58 | 'Children of David'.                                             | D. Rippin<br>(Branston, Lincoln)      |
| 59 | 'And Up She Rises'.                                              | D. Rippin<br>(Branston, Lincoln)      |
| 60 | 'O'Connor and Sauret'.                                           | I. M. Fore<br>(Surbiton KT6 5EL)      |
| 61 | 'MA' Diorama.                                                    | G. Peters<br>(Regents Park NW1)       |
| 62 | German Panzer Kampfwagen 2.                                      | C. Cully<br>(Sutton Coldfield)        |
| 63 | Half-track and Ancillary Equipment.                              | G. Lawrence<br>(Great Barr B47 1PS)   |
| 64 | 'French Guns Go Up' 1806.                                        | P. F. Wilson<br>(Sutton Coldfield)    |
| 65 | Pz 38 (r) Hetzer.                                                | I. Insley<br>(Sutton Coldfield)       |

**CLASS MB. Groups. Competition for groups of not less than three round figures of common scale and period. Flat figures are not eligible.**

- | Type                                                                         | Name                                      |
|------------------------------------------------------------------------------|-------------------------------------------|
| 1 Soldiers of the 20th, 29th, 30th Indian Cavalry—1910.                      | Andrew Jeffries<br>(London W4 1DU)        |
| 2 Affair of Honour.                                                          | Michael Thomas Moore<br>(Bromley BR1 5PG) |
| 3 A Quarter Guard of Duke of Cornwall's Light Infantry—1897.                 | Peter Joy<br>(Horsham, Sussex)            |
| 4 SS Motorcycle combination.                                                 | Stuart Evans<br>(Trowbridge, Wilts)       |
| 5 'Scotland for Ever' (Charge of the Scots Greys with the 92nd Highlanders). | W. G. Elliott<br>(Kingsbury NW9 8TG)      |
| 6 Three Hesse-Darmstadt Infantry.                                            | Kevin Brown<br>(Horsham, Sussex)          |
| 7 Buffalo Hunt.                                                              | David M. Catley<br>(Reigate, Surrey)      |
| 8 'Ave Imperator, Morituri te Salutant'.                                     | David M. Catley<br>(Reigate, Surrey)      |
| 9 Crow Indian and Army Scout 1868.                                           | David M. Catley<br>(Reigate, Surrey)      |
| 10 Macdonalds.                                                               | David M. Catley<br>(Reigate, Surrey)      |
| 11 Group of three 54mm figures.                                              | Ronald Ripley<br>(Billerica, Essex)       |
| 12 Normans at Bay!                                                           | Dennis Harvey<br>(Portsmouth, Hants.)     |
| 13 Charge of the Scots Greys.                                                | Stephen Allen<br>(London SW19)            |
| 14 Regimental Band Foot Grenadiers of the Imperial Guard 1804-1815.          | Alan Proctor<br>(Barnet, Herts.)          |
| 15 'Memento from the lost World'.                                            | Roger Coles<br>(London SW19)              |
| 16 A quiet break for a chat between three guardsmen.                         | Keith Edgar<br>(Blackheath SE10)          |
| 17 Caballero Mexican on Palomino Horse carrying girl pillion.                | Don Robinson<br>(Aylesbury, Bucks.)       |
| 18 The Meeting.                                                              | Robin Howard<br>(Bristol BS12 7NP)        |
| 19 'The lull before the Storm', four German soldiers and BMW 75.             | Robert Turner<br>(Devizes, Wilts.)        |
| 20 Kusunoki Clan v Shoguns.                                                  | Neil Merryweather<br>(Ilford, Essex)      |



### THE MINIATURE WORLD OF HENRY GREENLY

This is an account of the devoted work of one man a member of the small coterie who were the leading figures at the turn of this century in promoting the hobby of model engineering and the building of small-scale garden and public railways in Britain and the Continent. It is set against the social background of the 19th and early 20th centuries and begins with an account of Greenly's forebears who played their humble parts in the working of British railways nearly 130 years ago.

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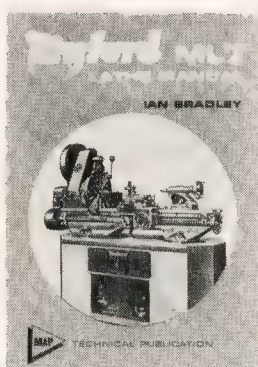
The text of this book which describes the construction of the freeance one-inch to the foot scale model traction engine Minnie appeared in a series of instalments in MODEL ENGINEER.

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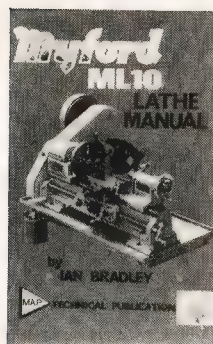
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- |    |                                               |                                      |
|----|-----------------------------------------------|--------------------------------------|
| 21 | The British Soldier through the ages.         | Neil Merryweather<br>(Ilford, Essex) |
| 22 | Destruction of Russians on Satchen Lake 1805. | C. K. Legg<br>(Taunton, Somerset)    |
| 23 | 30mm and Wargames figures.                    | P. Thernan<br>(Sutton, Surrey)       |
| 24 | 'What are we doing here?'.                    | J. A. Nicklin<br>(Sutton Coldfield)  |

**CLASS MC. Converted Single Figures. Competition for modification of proprietary kits or castings. Additional consideration given to exhibits where the original figure without any modifications is exhibited alongside. This is a competition to be judged upon ingenuity and imagination.**

- | Type                                                                            | Name                                               |
|---------------------------------------------------------------------------------|----------------------------------------------------|
| 1 Law Association Volunteers 1803.                                              | Michael T. Moore<br>(Bromley BR1 5PG)              |
| 2 British Naval Dress 1300-1972.                                                | Allan Garvey<br>(London SW15)                      |
| 3 Greek Swordsman 1200-800 B.C.                                                 | Gary Jones<br>(St. Johns WR2 5JB)                  |
| 4 Japanese Commander (Taisho 12-13 Cent.).                                      | Kevin Brown<br>(Horsham, Sussex)                   |
| 5 Mounted SS Cavalry Drummer 1940.                                              | Keith Jardine<br>(Basford NG5 1LA)                 |
| 6 10th Cent. Hun Cavalry figure—mounted.                                        | Keith Jardine<br>(Basford NG5 1LA)                 |
| 7 Milanese Armour c. 1520.                                                      | D. M. L. Jones<br>(London N13 5LA)                 |
| 8 Officer Mexican Militia c. 1820.                                              | D. M. L. Jones<br>(London N13 5LA)                 |
| 9 'The Guard Dies'.                                                             | Jeremy Stratton<br>(Crawley RH10 30W)              |
| 10 Sturmann of 3rd SS Panzer Division 'Totenkopf' wearing autumn pattern smock. | Benjamin W. Barry<br>(Bushey, Herts)               |
| 11 Warrior Monk.                                                                | David M. Catley<br>(Reigate, Surrey)               |
| 12 Samurai.                                                                     | David M. Catley<br>(Reigate, Surrey)               |
| 13 Gothic Horseman.                                                             | Keith Larkin<br>(London SE5)                       |
| 14 Conquistador mounted man carrying banner.                                    | Don Robinson<br>(Aylesbury, Bucks.)                |
| 15 Mounted drummer 13th (Duke of Cornwall's Own) Lancers.                       | J. D. Wilmshurst<br>(Maidstone, Kent)              |
| 16 Prince of Assyria 700 B.C.                                                   | Kenneth S. Frampton<br>(Portsmouth, Hants)         |
| 17 Amazon (400 B.C.).                                                           | Kenneth S. Frampton<br>(Portsmouth, Hants)         |
| 18 Assyrian Infantryman.                                                        | Kenneth S. Frampton<br>(Portsmouth, Hants)         |
| 19 Mameluke Officer.                                                            | C. K. Legg<br>(Taunton, Somerset)                  |
| 20 Guard Grenadier 1812.                                                        | David Robinson<br>(So. Shields, Durham)            |
| 21 Russian Hussar 1803.                                                         | Peter Fleming<br>(London SE13 6TH)                 |
| 22 Roundhead Cavalry Officer.                                                   | Peter Fleming<br>(London SE13 6TH)                 |
| 23 Prussian Cuirassier Von Beeren Regiment converted from 10th Hussar.          | David Brown<br>(Barnehurst DA7 6PZ)                |
| 24 Highlander conversion.                                                       | Margaret Lawrence<br>(Mrs)<br>(Great Barr B42 1PS) |
| 25 Show Jumper.                                                                 | M. Edeen<br>(Sutton Coldfield)                     |
| 26 Chasseur A Pied De La Garde.                                                 | P. W. Wilson<br>(Sutton Coldfield)                 |

**CLASS MD. Great Wars Class.** Competition for 54 mm. figures representative of the periods World War I (1914-18) and World War II (1939-45). All figures must be in battle order, use of backgrounds is permitted, figures should be single or in groups of not more than three.

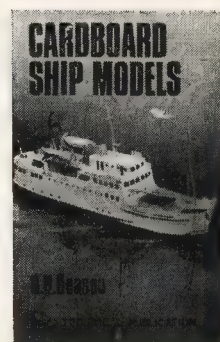
| Type                                      | Name                             |
|-------------------------------------------|----------------------------------|
| 1 Pz B39 7.62mm Anti-Tank Rifle and Crew. | Peter Joy<br>(Horsham RH12 2QW)  |
| 2 Black Watch 1915.                       | Kevin Brown<br>(Horsham, Sussex) |
| 3 'Mined'.                                | Paul Sewell<br>(Hayes, Kent)     |

**CLASS ME. Artillery.** Competition for exhibits consisting of field pieces and equipment with or without accompanying figures, to any scale.

| Type                                                                                  | Name                                     |
|---------------------------------------------------------------------------------------|------------------------------------------|
| 1 Pair Waterloo cannons.                                                              | Harold Nellist<br>(London E8 4LP)        |
| 2 Mk. I Howitzer.                                                                     | Robert S. Sambrook<br>(Wakefield, Yorks) |
| 3 4.7" Gun on modified 6" carriage.                                                   | Robert S. Sambrook<br>(Wakefield, Yorks) |
| 4 Stug III.                                                                           | S. J. Head<br>(Reigate, Surrey)          |
| 5 British Gun Team 1815. Gun and Limber. Attendant figures.                           | Keith Jardine<br>(Bastford NG5 1LA)      |
| 6 M551 Sheridan (USA).                                                                | Dudley J. Hubbard<br>(Sussex RH15 9HT)   |
| 7 'Which Way'.                                                                        | Alan R. Phillips<br>(Berk RG5 4LU)       |
| 8 American Civil War, 54mm Gun and accompanying figures.                              | Malcolm Goodall<br>(Sherwood NG5 2HL)    |
| 9 88mm Flak (Afrika Corps).                                                           | John Wright<br>(Reading RG3 3NN)         |
| 10 Modified Tamiya Panther V Tank without baseboard.                                  | N. Greenwood<br>(London E12 5LN)         |
| 11 Modified Tamiya Tiger I Tank without baseboard.                                    | N. Greenwood<br>(London E12 5LN)         |
| 12 Gun Carrier Mk. I.                                                                 | Jeffery Dorman<br>(Edmonton N18)         |
| 13 'The Americans are just down the road'.                                            | Duncan Mackenzie<br>(London SW2 3AP)     |
| 14 Group of 18th/19th Century guns.                                                   | Cap. Duncan Campbell<br>(Epsom, Surrey)  |
| 15 FV 433 Abbot.                                                                      | Robert Turner<br>(Devizes, Wilts)        |
| 16 6 pdr Gun and Crew 1775.                                                           | Norman Swales<br>(Doncaster, Yorks)      |
| 17 German Tiger in washable white distemper driving through snow and slush in Russia. | Trevor Popple<br>(Wimbledon SW19 8RR)    |
| 18 British Army mountain gun circa 1850.                                              | John Huggett<br>(Ipswich, Suffolk)       |
| 19 88mm. Anti-Tank Gun.                                                               | G. Lawrence<br>(Great Barr B42 1PS)      |

**CLASS MF. 54 mm. Class Figure.** Competition for the best painted figure made from a proprietary kit or casting without modification to the "54 mm." scale.

| Type                                                   | Name                                 |
|--------------------------------------------------------|--------------------------------------|
| 1 Cavalryman.                                          | Stuart Evans<br>(Trowbridge, Wilts)  |
| 2 Cromwell's Man.                                      | W. G. Elliott<br>(Kingsbury NW9 8TG) |
| 3 French Fusilier Summer 1805.                         | Robert B. Allen<br>(London N16)      |
| 4 Morning — Sunday, 18th June, 1815.                   | Robert B. Allen<br>(London N16)      |
| 5 Emir of the Khalifa's Bodyguard. Mounted 1898—Sudan. | Keith Jardine<br>(Bastford NG5 1LA)  |

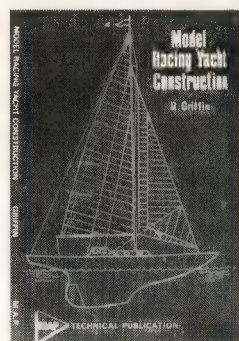


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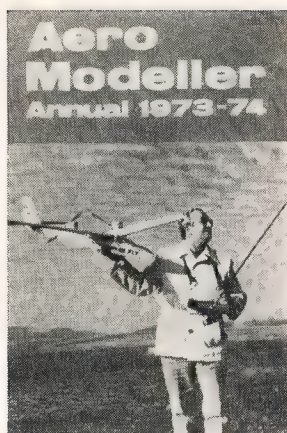
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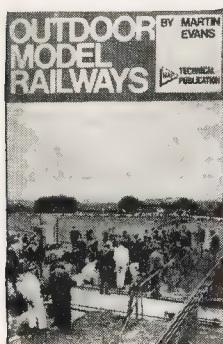
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- |    |                                                                          |                                         |
|----|--------------------------------------------------------------------------|-----------------------------------------|
| 6  | German Army Cossack.                                                     | James W. Jefferys<br>(Gillingham, Kent) |
| 7  | 1st Regiment Swiss Grenadiers 1807.                                      | Jeremy Stratton<br>(Crawley RH10 3DW)   |
| 8  | 6th Hussar Trooper 'Resting' 1815.                                       | Alan R. Phillips<br>(Reading RG5 4LU)   |
| 9  | 42nd Highlander (Black Watch).                                           | Kenneth R. Dark<br>(London SE27 9EH)    |
| 10 | British 10th Hussar.                                                     | Kenneth R. Dark<br>(London SE27 9EH)    |
| 11 | Trumpeter 2nd Regiment Dutch Lancers, and 1st Regimental Polish Lancers. | Alan Proctor<br>(Barnet, Herts)         |
| 12 | Mameluke cymbalist and Mameluke tambourine player.                       | Alan Proctor<br>(Barnet, Herts)         |
| 13 | Mameluke Kettle-drummer.                                                 | Alan Proctor<br>(Barnet, Herts)         |
| 14 | 10th Hussar.                                                             | Barry J. Gant<br>(Bath BA1 4BA)         |
| 15 | Mounted Cossack in German Army.                                          | D. G. Kempster<br>(Bulwell NG6 8LL)     |
| 16 | The Celt.                                                                | Robin Howard<br>(Filton)                |
| 17 | Marshall Ney plans his campaign.                                         | Graham Reynolds<br>(Bakewell, Derbys)   |
| 18 | Carabinier 1810-1815.                                                    | Christopher Davis<br>(Croydon, Surrey)  |

#### CLASS WA. Modern Furniture

- | Type                               | Name                             |
|------------------------------------|----------------------------------|
| 1 Occasional table in English Oak. | D. G. Keen<br>(Harpenden, Herts) |
| 2 Bedside cabinet in Chestnut.     | D. G. Keen<br>(Harpenden, Herts) |

#### CLASS WB. Any work in glassfibre or other plastic as main constituent.

- | Type                                  | Name                                     |
|---------------------------------------|------------------------------------------|
| 1 Perspex table lamp.                 | Harold Wilson<br>(St. Albans AL1 2LP)    |
| 2 Ornamental wood-turning table lamp. | Harold Wilson<br>(St. Albans AL1 2LP)    |
| 3 1930 Bentley 4½ litre supercharged. | Henry Donald Stroud<br>(Ipswich IP3 9AN) |

#### CLASS WD. General Craft Work — musical instruments, carving, marquetry, drawings.

- | Type                        | Name                                     |
|-----------------------------|------------------------------------------|
| 1 Candle Sticks.            | Trevor J. Hubble<br>(Greenford UB6 8QZ)  |
| 2 Carved Dish.              | Trevor J. Hubble<br>(Greenford UB6 8QZ)  |
| 3 'Billiards Room'.         | E. E. Fenn<br>(Acton W3)                 |
| 4 Norwegian spinning wheel. | J. W. Way<br>(Norfolk IP24 1DG)          |
| 5 Hawfinch/Lesser Redpolls. | E. H. Ives<br>(Ipswich IP8 3AY)          |
| 6 Drawing.                  | Philip Williams<br>(Brickhill, Bedford)  |
| 7 Marquetry Pictures (2).   | Bernard Klingenspor<br>(Harlow CM20 3BJ) |

#### CLASS SA. Romford and Dagenham Boys' Club.

- | Type                                       | Name                                    |
|--------------------------------------------|-----------------------------------------|
| 1 'Surfury'                                | Johnathan Abbott<br>(Hornchurch, Essex) |
| 2 Minute Man<br>Atro Plane<br>Seaview Job. | Andrew Barker<br>(Dagenham, Essex)      |
| 3 Lifeboat.                                | Andrew Barker<br>(Dagenham, Essex)      |

- 4 Flatty Mk II.
- 5 Submarine.
- 6 Frigate.
- 7 Flatty Mk I Cabin Cruiser.
- 8 Magpie — Frigate.
- 9 Leander Class Frigate.
- 10 Brave Borderer Hydroplane.
- 11 Toby Jug.
- 12 Catamaran.
- 13 Submarine.
- 14 Castle Class Frigate.
- 15 Flatty Mk II  
Minute Man  
Car Ferry.
- 16 Cargo Vessel.
- 17 H.M.S. Leander—Frigate.
- 18 Door Knocker—Lion's Head.
- 19 Train Ferry.
- 20 R.T.T.L.
- 21 V. & W. Class Destroyer.
- 22 Minute Man.
- 23 Model Horse with the Queen as  
rider.
- 24 Loch Class Frigate.
- 25 H.M.S. Frigate.
- 26 Yacht Schooner.
- 27 Donkey and Cart.
- 28 Ayuthia (Siamese Cruiser).
- 29 Stags Head.
- 30 H.M.S. Coventry.
- 31 H.M.S. Tiger.
- 32 American Eagle.
- 33 Plasticine Model.
- 34 3D Picture of Wreck  
Light ship and Lifeboat.
- 35 Castle Class Frigate.
- 36 H.M.S. Dido.

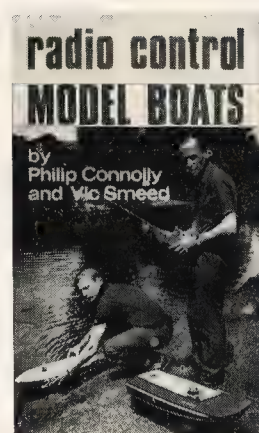
**CLASS SCHOOLS. Schools.**

- Type  
1 'Rob Roy' Locomotive.

Andrew Barker  
(Dagenham, Essex)  
Michael Chilvers  
(Ilford, Essex)  
Paul Cotsgrove  
(Romford, Essex)  
Stephen Crocket  
(Dagenham, Essex)  
Peter Davis  
(Dagenham, Essex)  
Dale L. Decker  
(Braintree, Essex)  
Peter Doughty  
(Dagenham, Essex)  
Peter Doughty  
(Dagenham, Essex)  
Amanda Guest  
(Romford, Essex)  
Andrew Guest  
(Romford, Essex)  
Graham Guffick (York)  
Neil Harrington  
(Dagenham, Essex)

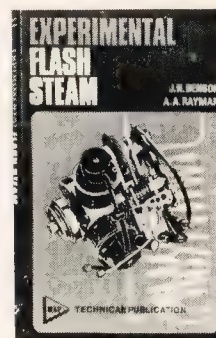
Karl Hayes  
(Dagenham, Essex)  
Keith Hurrell  
(Dagenham, Essex)  
Keith Hurrell  
(Dagenham, Essex)  
Wayne Jiggins  
(Dagenham, Essex)  
Wayne Jiggins  
(Dagenham, Essex)  
Wayne Jiggins  
(Dagenham, Essex)  
Wayne Jiggins  
(Dagenham, Essex)  
Wayne Jiggins  
(Dagenham, Essex)  
Paul Morrad  
(Romford, Essex)  
Andrew Orr  
(Dagenham, Essex)  
Susan Richards  
(Dagenham, Essex)  
Susan Richards  
(Dagenham, Essex)  
John Richards  
(Dagenham, Essex)  
John Richards  
(Dagenham, Essex)  
Stephen Suttle  
(Dagenham, Essex)  
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(Dagenham, Essex)  
Stephen Suttle  
(Dagenham, Essex)  
Ann Suttle  
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Ann Suttle  
(Dagenham, Essex)  
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## Trade Exhibitors..

(Continued from page 55).

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The Badger 250-1 is very popular, especially among beginners, for single-colour finishes and wide coverage.

The Badger 200-EX will produce sophisticated colour schemes, from fine lines and delicate shading to special camouflage, weathering, exhaust and other effects, as well as a broad spray.

The Badger 100-XF just introduced to Britain is the 'professional' instrument for meeting the highest possible standards of craftsmanship. Along with one-finger control of mixture and pressure, it has a number of unique features for ease of maintenance and long life.

Stand No. 39

### STUDIOLITH LTD.

Studiolith Ltd. again comes to the Seymour Hall exhibiting the range of correctly scaled model railway components for 4 mm/1 ft. scale marketed under the name 'Protofour' R. This set of standards, which is considered to be the closest to prototype in 4 mm scale is a complete system in itself, and examples of tools, gauges, templates and track materials for the construction of realistic track to the correct gauge of 18.83 mm will be shown.

A number of components can be used by anyone in 4 mm scale. These include the correct nickel-silver Bullhead Rail, Ballast, Baseboard Joiners and the scale 3-link Couplings with the intriguing Magnetic Shunters' Pole.

In addition, kits by Western Precision, Mopok, Kenline, George Alan, Anbrico, Brakenborough, Westward, Wyatt & Tizard, Mike's Models and the complete range of 4 mm locomotive nameplates by LFC Models will be on sale.

### CLASS LOAN Loan.

| Type                                       | Name                                                                  |
|--------------------------------------------|-----------------------------------------------------------------------|
| 1 Hotchkiss Record Car.                    | A. F. Weaver<br>(Tregynon)                                            |
| 2 C.I. Stationary Engine.                  | A. F. Weaver<br>(Tregynon)                                            |
| 3 Cabin Cruiser.                           | A. F. Weaver<br>(Tregynon)                                            |
| 4 Long-case Clock with 'Halifax Moon'.     | J. Stevens<br>(Ealing W5)                                             |
| 5 'Allchin' Traction Engine.               | M. J. Isaac<br>(Brislington B34 4TE)                                  |
| 6 Ex GWR 'King' class loco.                | G. Hawkins<br>(Kingswood BS15 4UQ)                                    |
| 7 L.M.S. 0-6-0 Dock Tank (Butch).          | J. L. Harris<br>(Coalpit Heath, Bristol)                              |
| 8 Juliet 0-4-0T.                           | D. Pring<br>(Kingswood, Bristol)                                      |
| 9 Nigel Gresley 28.0                       | C. Culverhouse<br>(Nailsea, Somerset)                                 |
| 10 Britannia.                              | J. Williams<br>(Brislington, Bristol)                                 |
| 11 0-4-0 Locomotive 'Muriel'.              | M. Dunkerley (Mrs)<br>(Redfield, Bristol)                             |
| 12 Canterbury Lamb 0-4-0 Loco. (Invicta).  | M. Dunkerley (Mrs)<br>(Redfield, Bristol)                             |
| 13 'Rainhill' 0-2-2 Locomotive.            | M. Dunkerley (Mrs)<br>(Redfield, Bristol)                             |
| 14 'Flying Scotsman' 4-6-2 Locomotive.     | M. Dunkerley (Mrs)<br>(Redfield, Bristol)                             |
| 15 Locomotive based on 'Tich'.             | D. E. F. Marshall<br>(Chilcompton, Bath)                              |
| 16 3½" gauge L.N.E.R. L4 class 2-6-4 Loco. | The Bristol Soc. of<br>Model & Experimental<br>Engineers<br>(Bristol) |
| 17 Chassis of 5" gauge Peckett 0-4-0.      | J. R. Whale<br>(Brislington BS4 5AL)                                  |
| 18 Juliet (Baker Valve Gear).              | G. Storey<br>(Easton BS5 0L2)                                         |
| 19 'Juliet' 0-4-0 Tank.                    | A. L. Samuels<br>(Bristol B59 3LR)                                    |
| 20 5" gauge Simplex Chassis.               | B. G. North<br>(Yatton BS19 4BD)                                      |
| 21 7¼" gauge Locomotive 'Invicta'.         | M. D. Marshall<br>(Drew, Bristol)                                     |
| 22 45xx GWR Tank Chassis Boiler Smoke Box. | M. D. Marshall<br>(Drew, Bristol)                                     |

### CLASS LOAN. Loan continued.

| Type                                                      | Name                                    |
|-----------------------------------------------------------|-----------------------------------------|
| 23 Royal Scot Class locomotive.                           | A. Tilley<br>(Brislington, Bristol)     |
| 24 Evening Star Loco. Chassis 2-10-0.                     | Mrs M. Dunkerley<br>(Redfield, Bristol) |
| 25 'Virginia' 4-4-0 Locomotive.                           | Mrs M. Dunkerley<br>(Redfield, Bristol) |
| 26 Donkey Pump & Vertical Boiler.                         | Mrs M. Dunkerley<br>(Redfield, Bristol) |
| 27 Triple Expansion marine engine with condenser & pumps. | Mrs M. Dunkerley<br>(Redfield, Bristol) |
| 28 Horizontal Mill Engine Stuart Turner No. 9.            | Mrs M. Dunkerley<br>(Redfield, Bristol) |
| 29 Grasshopper Type Beam Engine.                          | Mrs M. Dunkerley<br>(Redfield, Bristol) |
| 30 Class 9 'E/Star' not completed.                        | F. W. Lloyd<br>(Patchway, Bristol)      |
| 31 Diesel Loco 10101.                                     | J. Williams<br>(Brislington, Bristol)   |
| 32 Foden 'C' type 12 ton Tractor.                         | T. Morris<br>(W'ton, Staffs)            |

# Trade Exhibitors. . . .

(Continued from page 34)

## Stand No. 29

### AVALON HILL GAMES

The world famous Avalon Hill Games are a range of advanced board games from the Avalon Hill Company of Baltimore, U.S.A., now imported and distributed in the United Kingdom by M. D. & S. M. Hodge.

The historical series of 14 games covering famous battles and campaigns come in boxed and book-case styles of packing, and are for people who want to do more than just read about great events: Avalon Hill allows you to actually participate in these events.

These games stimulate the strategic and tactical situations, from the dogfighting, trench-raiding of W.W.I. aerial warfare to the armoured warfare on the Russian front, while overhead the Luftwaffe takes to the air to defeat the Allied airforce. Extensive research goes into each game so that the units have the same performance as they did in real life.

The Historical Series are basically two player games, although additional people can be assigned roles of subordinate commands. The General Games are from two to four players. It is hoped to have strategy and tactics games on display.

The complete list of games will be displayed and colour catalogues plus retail price list will be available. The games will also be for sale at retail prices. Retailers' enquiries will be welcomed.

## Stand Nos. 30 & 31

### ARMS & ARMOUR PRESS

Arms & Armour Press will display a wide range of military books on tanks, uniforms, aircraft, ships, guns—both published by themselves and other publishers. Recently published books such as the encyclopaedic Pictorial History of Tanks of the World 1915-1945 and Battleships of World War I will be on show, plus the new Military Smallarms of the Twentieth Century. The first material for an exciting new uniform series Key Uniform Guides (each only 90p) will be available.

Arms & Armour Press are always pleased to receive both trade enquiries and enquiries from prospective authors.

## Stand Nos. 33 & 34

### SEAGULL MODELS (G.B.) LTD.

This company will be no stranger to regular visitors to the Show. Originally a mail order company, it has extended its activities over the past few years to include a retail shop in Central London. This specialises in Military and Maritime subjects, and holds the world's largest stock of paper models covering all subjects. On the stand this year will be a delightful new range of unbelievable scale model life size birds in paper by Malcolm Topp. There will be a complete painted range of 'Valiant' figures from the United States, as well as many examples of work by well-known personalities in the modelling scene. Then there will be the new 'JAC' figure range on show, plus one or two 'surprises'.

Full stocks of castings, kits, books and paper models will be for sale during the show, and of course are obtainable all year round either by visiting the shop or via mail order.

## Stand No. 35

### HOROLOGICAL JOURNAL

On show three outstanding clocks made by John Wilding.

1. The Weight Driven 8 Day Wall Clock, winner of a Silver Medal at the 1972 Exhibition.
2. The Skeleton Clock, winner of a Silver Medal at the 1973 Exhibition.
3. A Weight Driven 30 hour Alarm Clock on show for the first time ever. A complete reproduction of a 17th Century Alarm Clock.

In addition copies of the 'Horological Journal', the oldest technical trade journal in the world devoted to watches and clocks. For potential and actual clockmakers a 'must' every month.

A really special offer is being made to visitors to purchase John Wilding's books and the Horological Journal at the Exhibition. An unrepeatable offer, and, of course, here you can meet John Wilding in person.

## Stand No. 36

### LES APPLICATIONS RATIONNELLES (U.K.)

After a successful launch last year 'Les Applications Rationnelles' have pleasure in presenting again their miniature precision drill with accessories. The past 12 months the drill has been accepted as 'what has been wanted for a very long time in the model world' many hundreds are now giving superb service in every branch of Model Engineering and Laboratories throughout the U.K., indeed throughout the World. Improvements have been made with the chuck and switching. L.A.R. of Paris are continually striving to design even a better piece of equipment.

A very interesting accessory makes its debut at this Exhibition in the form of a Flexible drive approximately 40 cms in length.

The Flexible can be used with practically any make of drill and will provide a tool of immense use to all hobbyists.

Our stand will be manned with staff giving continuous demonstrations throughout the Exhibition and they will be more than pleased to meet old customers and new to discuss any piece of L.A.R. equipment.

## Stand No. 37

### CAMPAIGN COLOURS LTD.

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## Stand No. 38A

### BADGER AIRBRUSH

Painting models and scenery is being demonstrated with Badger airbrush equipment on Stand 38A.

(Continued on page 54)

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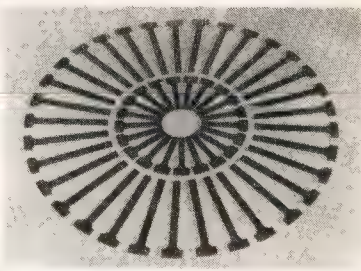
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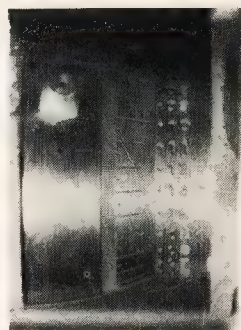
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# Free Flight Model Aircraft

ONE OF THE MAIN characteristics that separates aeromodeling from most other forms of model making is that even when the 'masterpiece' has been built, it still has to be *proven* by being made to fly—and a model aircraft which appears to have been carefully built will not necessarily fly satisfactorily. This is perhaps particularly true of the free-flight model, and so a 'failure' is always a distinct possibility; herein lies the real challenge of this fascinating hobby or sport. To be a successful *builder* is one thing, but to be a successful *flier* is another . . . the 'complete' aeromodeler must therefore be the master of several skills, not the least being a working knowledge of the laws of aerodynamics.

Free flight, as its name suggests, is one of the 'purest' forms of aeromodeling as once the flier has released his machine to the care of the elements he has no further control over it—therefore pre-flight preparation is all important.

Basically, the main objective of the free-flight modeller is to achieve a reasonable duration from his craft, whether this is purely to satisfy his own sense of achievement, or to compete against other modellers in a contest. A model cannot glide very far when simply released by hand, so normally one of three methods of obtaining a reasonable altitude is used to extend the flight performance.

The glider is one of the most popular types of model, and these are towed up into the air by means of a thin nylon line, rather like flying a kite. The flier simply runs against the wind with his model, which may span anything from 30-120 inches, on the end of a length of line which is normally around 150 feet long. The glider will rise rapidly until it is high above the head of the flier, who then flicks the line to release it from a hook underneath the fuselage, leaving the model to glide smoothly back to earth. In order to keep this model within the confines of the field from which it is being flown, it is usually arranged so that the rudder automatically moves over to the right on release of the towline, which causes the glider to

by P. Richardson, Editor Aero Modeller

fly in large circles. Even so, a flight lasting around 2-3 minutes may involve the flier in a good cross-country run to retrieve his craft, especially if a fair breeze is blowing at the time!

An alternative method of gaining altitude is the use of a rubber motor just like an elastic band in principle, although in practice far more powerful—in fact rubber motors are made up of many feet of strip rubber having a cross section of around  $\frac{1}{4}$  in. x  $\frac{1}{24}$  in. often arranged into many loops. The more power you need, the more 'strands' of rubber you use—motors made up from 16 feet of rubber are quite common. When wound up tightly, such a 'motor' can provide an awful lot of power!

With the motor fully wound, the model will climb quite quickly at first, then as the rubber unwinds this rapid climb will flatten-off gradually until the model is eventually flying in a level altitude. When the power is finally exhausted, the machine will then continue to glide back to earth. As the propeller is now no longer 'working' the machine is essentially a glider, but the propeller now creates drag, acting as a brake, and so it is normal to arrange for the two blades to fold back alongside the fuselage to present a more streamlined configuration. Models which have a one-piece, rigid propeller overcome this drag problem by automatically free-wheeling—it will just revolve under the influence of the wind.

These models are also made to fly in circles, but in this case a rudder is not normally employed; instead the left hand wing tip is warped downwards (known as wash-in) to increase the lift on one side of the model which in turn causes a glide

*Top left: Typical power duration competition model by Kim Jong Choi of North Korea. Wing is mounted several inches above the fuselage on a pylon. Top right is Verbitsky of the U.S.S.R., who's model looks similar but has a variable camber wing for maximum efficiency.*



to the right. When the model is climbing under power this turn is counteracted by the torque of the motor—a tendency of the propeller to turn the model in the opposite way to which it is rotating. Rubber powered models vary considerably in size and appearance, but are usually between 30 in. and 70 in. wingspan.

The third means by which altitude may be gained is to use a model internal combustion engine, either of the 'diesel' or 'glow plug' ignition variety. These engines develop considerable power for their capacity and weight, so to prevent the models from climbing too high (even out of sight!) they are only operated for a short period, say from 10 to 20 seconds depending on the type of model being flown. The engine is stopped either by providing a very limited amount of fuel, or by using a clock-work timer to cut the supply of fuel from the tank. The capacity of the engines used may vary from 0.2 c.c. to 10 c.c., but the most commonly employed are 0.8 c.c. engines, although competition minded enthusiasts tend to prefer a 2.5 c.c. capacity limit.

Once again, as soon as the engine has stopped running, the model is free to glide back to earth—the necessary circling flight being taken care of by either wing warps or rudder, or even a combination of both. Model sizes and configurations depend entirely on the amount of power available, and the type of performance desired, but in practical terms models are rarely less than 30 in. and not often greater than 8 ft. in wingspan.

The models themselves vary greatly in appearance according to the whims of the builder. He may be what is known as a 'sports' flier, in which case

A sports type of power model, designed purely for fun flying — the high wing, semi-scale layout is typical. This model named 'Wasp Wings' was built from a commercial kit produced by Performance Kits. It uses 0.8 cc engine for power.

his sole aim is purely to achieve enjoyment from flying a model which he has built, and quite often designed, himself. He is not interested in out-and-out duration, he just wants a model that flies satisfactorily and looks pleasing in the air, so he often plumps for a stable, high wing design of attractive appearance, frequently reminiscent of late 30's style light aircraft. The contest flyer on the other hand wants a machine capable of achieving the greatest possible duration from within the confines of the rules governing the particular type of model which interests him, and the scale enthusiast at the other extreme strives to achieve the greatest possible realism in both appearance and flight characteristics of his chosen full-size subject.

We stated before that a model which appears to be well built may not perform to expectations. What are the factors that can cause this? They are many and varied, the commonest, perhaps, are warps in the wings which can 'creep in' either during the course of construction or when the covering is applied. A warp can cause unwanted turns to develop, with sometimes disastrous results—Mother Earth is rather hard and unwelcoming to our frail craft! Other mistakes can include rigging the wings or tailplane at the wrong angles relative to one another which can cause uncontrolled climbing or diving tendencies, while it is always important to ensure that the centre of gravity is in the correct place. In short, the model must be built and assembled aerodynamically correctly.

Even with a 'true' model, the builder must trim his model to fly properly, and this may involve altering the angles of incidence of either the wing or tail by minute amounts to achieve the flattest possible glide, while the glide circle must be neither too small nor too great. Towing up a glider is in itself something of an art, while those who use

(Continued on page 75)

Aeromodellers come in all age groups — at right Anthony Fantham with his 'Caprice' glider, a simple design available in kit form from Keil Kraft Ltd. Contest gliders are usually some 50 per cent bigger and frequently employ glass-fibre rods for the fuselage.



At left Dave Hipperson re-attaches the propeller to his 'unlimited' class rubber powered duration model. The large diamond-sectioned fuselage is necessary to carry the multi-strand rubber motor.



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## Publications

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## Model Yachting is In says Vic Smeed

ONE OF the outstanding features of the modelling world over the last five years or so has been the remarkable revival of interest in model yachting. Probably several factors account for this, but prominent among them must be what amounts to ecological considerations; a model sailing craft causes no noise nuisance, nor air or water pollution, and people are finding that they can sail a yacht on water in public parks or close to houses where other forms of model are banned. Similarly, there is not the same antipathy from fishing enthusiasts, since sail creates little disturbance.

Undoubtedly a proportion of the interest arises from the move to radio control in yachts. Vane sailing requires access all round a lake, but with radio many waters unsuitable for vane boats are entirely usable. However, the interest in vane boats is, if anything, growing more rapidly in

many areas of Britain than that for radio, and there are probably more new boats under construction at this moment than at any time for 20 years or more. Possibly the increase in leisure time has something to do with it, plus the general upsurge of interest in sailing generally, evidenced by the enormous increase in small boat ownership. Not everyone likes dinghy sailing, or can afford it, though!

The governing body for model sailing in Britain, the Model Yachting Association, has adapted itself well to the demands now made upon it; it does not always appear to move as fast as some of its more impatient members would like, but long experience has shown the wisdom of steady progression rather than changing direction to every gust. It has, for example, taken a long time and one or two experimental moves before deciding on official recognition of radio yacht classes; it has now been proved that the simplest idea, that of recognising all standard vane classes for radio adaptation, is a better procedure than instituting special classes.

The basic classes recognised for vane sailing still number five—the A, 10 rater, 6 metre, Marblehead and 36 Restricted—

*One of the newest British Clubs is the New Forest R/C M.Y.C., which sails only radio boats. Seven Marbleheads are racing in the picture above.*

and these classes, carrying a prefix letter R, are used for radio.

Over the last few years the fortunes of various classes have varied, with the exception of the M class which has consistently remained popular and is in fact numerically the biggest class in most countries. There have been one or two minor adjustments to the rule, mainly concerned with elimination of unnecessary prohibitions and limitation of sail heights etc., but basically the requirements are still an overall length of 50 in. and a maximum sail area of 800 square inches. This is one class which in effect lays down a minimum boat, since the rule states that the overall length will be 50 in. plus or minus  $\frac{1}{4}$  in. plus  $\frac{1}{2}$  in. allowed for bow bumper; thus the minimum size for the boat is 49 $\frac{3}{4}$  in. In all other classes it is possible to sail a smaller boat than average, although since the waterline length of a boat is a major factor in its speed, smaller than average boats are automatically handicapping themselves.



*Left, a modern 10-rater — note the bulb keel and swept-forward fin. Hull is 7 ft. long and displacement 23 $\frac{1}{2}$  lbs.*

*A very simple 36R (right) which has started off many new enthusiasts. The prototype, Gosling, is at the Exhibition.*



The other main considerations for speed are sail area and stability, the latter being affected by beam, draught and displacement, and rules for the other classes limit all or some of these factors.

The smallest class, the 36 in. Restricted, is simple in that it requires only that the boat, less sails etc. should fit inside a box 36 in. x 9 in. x 11 in. and the total weight of the boat shall not exceed 12 lbs. There is thus a limitation on length (and hence possible waterline length), beam, draught, and displacement, but sail area is unlimited.

In the 10 Rater class the basic formula relates sail area and waterline length so that the longer the waterline the less the sail area permitted. Apart from this there is considerable freedom in this class.

The A class, the largest of all the racing classes, takes into account all factors except beam, which is only affected indirectly. One main formula and two or three subsidiary ones make the rule appear quite complex but it is a clever rule in that it is possible to design boats of from 30 to 90 lbs. displacement within the rule, all of which will have similar performances on average.

The most complex rule of all is for the 6 metre and for this reason this class has lost its popularity, although a flicker of life remains in it and we may well see interest growing if performances of the bigger A and 10 Rater classes continue to improve. The speed of these models is now such that in strong winds the physical effort of sailing is proving too much for older skippers, who may therefore turn to the 6 metre as being a class still holding development potential but not so far proving exhausting to sail!



'A' boats racing at Fleetwood in the 1973 Championships which had a record 56 entries, 14 from overseas.

Below, 'A' boats at Gosport, which in August will be the scene of the 1974 British Open & International Championships.



Right, the very latest design published, Genie, a simple Marblehead currently described in 'Model Boats'. This Model is also on view at the Exhibition.

More 'A' Class models. On vane racing, each boat races every other for 3 points (beating) and 2 points (running).



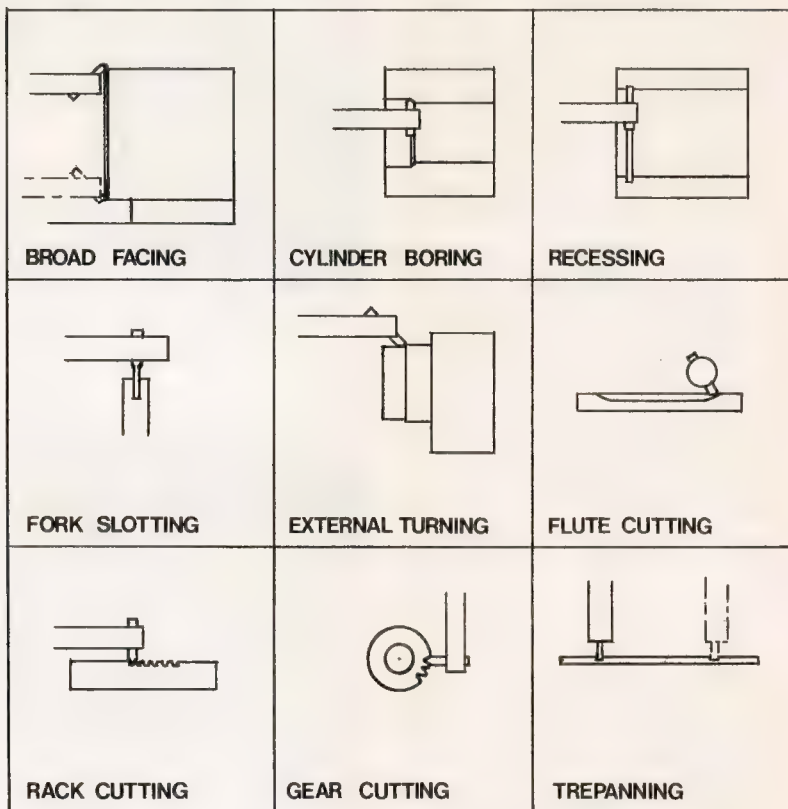
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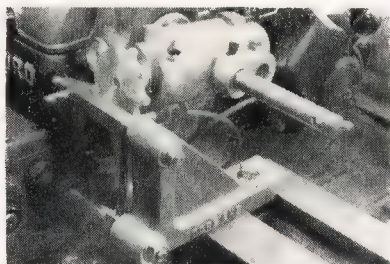
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AEROBATICS MUST BE, if not the greatest, then one of the greatest tests of pilot ability in full size aviation. Some might disagree with that statement, but in general it is true.

Similarly, in the field of radio controlled model aircraft, the same applies. If there is anything that tests a pilot's ability to the limit it is aerobatic flying.

As in full size aerobatics, 'stunts' as we sometimes call them are as old as the sport itself. Once having mastered his machine, the pilot attempts gradually to match his ability to the capability of the machine he flies. So, ever since the first R/C models, modellers involved have attempted aerobatic routines. Not surprisingly, again as for full size, the first attempts were pretty pathetic. The models simply were not designed or stressed for the job.

But gradually, satisfactory aerobatic R/C models were devised—very much on a trial and error basis (modellers rarely get much more technical)—slowly the basic layout and requirements were discovered and understood, aided by development in model radio control equipment which at first was another limiting factor, gradually developed to provide the comprehensive controllability necessary.

During the late 1950s, aerobatic R/C flying began to be established as a competition flying class. Aerobatic manoeuvres were becoming recognisable to the extent that pilots could be required to perform a schedule of manoeuvres on demand, in a set order. By today's standards it was all pretty simple, staid stuff, but it was a start and rapidly developed into an international competition class, the prize for which, annually contested, was the 'King of the Belgians' cup.

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Such royal patronage gave added impetus and the 'King of the Belgians' trophy remained the individual first prize when the R/C aerobatic event achieved World Championship competition status in 1960 when the first ever World R/C Championship (FAI Class F3A) was held at Dubendorf, Switzerland in 1960. Ed Kasmirski of U.S.A. took home the individual trophy, and Great Britain topped the *Team* results (teams of three permitted per nation in World Championship competitions).

Altogether there have been eight World R/C Aerobatic Championships, the first in Switzerland being followed by similar and progressively larger events as follows:—

|            |      |
|------------|------|
| England    | 1962 |
| Belgium    | 1963 |
| Sweden     | 1965 |
| Corsica    | 1967 |
| W. Germany | 1969 |
| U.S.A.     | 1971 |
| Italy      | 1973 |

During this time the event has witnessed many improvements in model and radio equipment design and it is only fair to give the World Championship event some of the credit for speeding these developments along.

The latest World R/C Aerobatic event, held at Gorizia on the Yugoslav-Italian border was a most enjoyable affair and by far the largest yet, attract-

*Above right: surprise of the recent World R/C championships was the domination of event by the Japanese. They had not, hitherto done well in event, but this time they took both Team and Individual first places. New world champion seen here is Tsugutaka Yoshioka. Right: competitors travel from many parts of the world for world championships. Here is Canadian entrant Ivan Kristensen, who emigrated from Denmark.*

*Excellent mental and physical reactions of youthful R/C pilots has proved an advantage. At left is Hanno Pretner of Austria, aged 20 placed third and world R/C champ in Italy of final fly-off, having led all four rounds of preliminary competition. Harald Necker of West Germany, another young pilot, placed 4th at World Champs seen 2nd left with model.*

ing 78 competitors from 28 countries. It produced a surprise result in that the Japanese took both Individual and Team first places. Previously the Japanese had not done outstandingly well in this event—they had never come very close to winning at all and it is their sudden ascendancy that illustrates dramatically the very best feature of aerobatic competition—that it is the singular pilot ability of the individual competitor that counts for almost everything in this R/C contest event. For obvious reasons it is the individual's ability to manipulate the controls that so decisively decides the outcome of the contest—outweighing any other relevant factors to a far greater extent than in any other radio control competition event. R/C Scale has already reached World Championship status while Pylon Racing and Thermal Soaring are knocking hard on the door. All three of these events demand considerable effort in directions other than pilot ability (which is still important of course). It is the singular demand on the pilot which makes the R/C aerobatic event internationally popular and which will certainly guarantee its popularity for the future—long may it remain so.



# Model Boat Anniversaries

## MODEL POWER BOAT ASSOCIATION SILVER JUBILEE 1924 – 1974

*Globe-trotting M.P.B.A. Secretary Jim King (left) discusses a modern R/C hydro-plane with Merv Mischnik and son Mick on a visit to Chicago.*

THE START OF competitive events for model power boats began well before the foundation of the Model Power Boat Association. It is known that around the turn of the century a number of clubs for model power boats were in existence or in the course of formation. In the north, for example, there were the Wirral and Tynemouth Clubs, and in the London area the Victoria Model Steamboat Club.

A landmark in power boat history was the famous 'Model Engineer' Regatta held at Wembley in 1908, and this event demonstrated the pleasure to be gained from model power boats in competition.

Model yachting—as opposed to power-driven boats—was at this time very popular and the Model Yacht Racing Association had the support of a large number of clubs. After the Great War a few of the power boat clubs also joined this organisation, but apparently without much benefit, for in June 1922 it was reported in 'Model Engineer' that a Mr. King of the North London M.P.B.C. had suggested that an attempt should be made to form an association solely for model power boats.

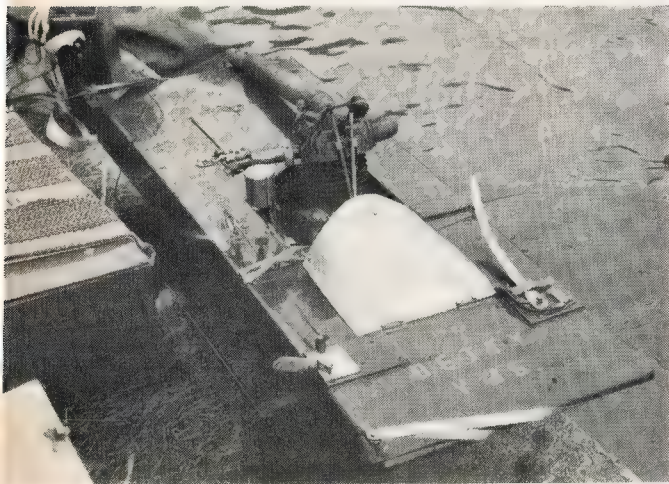
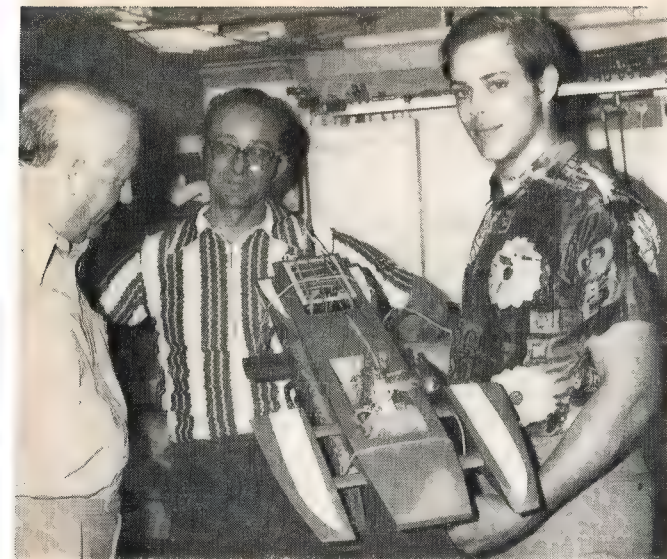
In January 1923 the Victoria M.S.C. voted to withdraw from the M.Y.R.A. The latter were also in trouble on the model yachting side since only 15 clubs remained and other model yachting associations were also in existence. Early in 1924 the M.Y.R.A. was reorganised under the new title 'The

Model Yachting Association' catering solely for model yachts. On March 8th 1924 a conference of model power boat clubs discussed the possibility of forming an Association for model power boats, and at a subsequent meeting at the Hawley Memorial Hall, Hawley Road, London, N.W.1, the 'Model Power Boat Association' came into being with John G. Philpot as Hon. Secretary and F. J. Pierson as Chairman. This meeting was held on April 12th 1924, which is the birthday of the Association. The clubs founding the M.P.B.A. were: The Victoria M.S.C., North London M.P.B.C., West London M.P.B.C., South London M.P.B.C., Reading S.M.E. and the Society of Model & Experimental Engineers.

The first great event in the history of the Association was the regatta held at Victoria Park, London, on Sunday, September 13th 1925. At the time it was referred to as the 'National Regatta', but it also marked the first appearance of Gerns Suzor of the Model Yacht Club de Paris, so in fact the regatta was international in character. The high performance of Gerns Suzor's entry *Canard* provided great stimulus to British model power boat enthusiasts and his pleasant personality ensured participation of competitors at international events between France and Great Britain that has continued ever since.

Although every effort was made to expand the M.P.B.A. at this time, clubs were rather slow to come in and by 1928 there were only 10 affiliated clubs. The Thirties, however, marked the turning point as many famous provincial clubs joined up and at the outbreak of war in 1939 the total had risen to 34. At the resumption of organised activity in 1945 many of these clubs were dormant or no longer in existence and some years elapsed before the pre-war maximum figures were reached. Some of the surviving clubs had 'done their bit' during the war by staging special events and regattas in support of 'Holidays at Home'. Thanks to these active clubs and also the efforts of the Officers of the Association, affiliated clubs and membership has increased steadily. By 1950 there were 52 clubs, then the popularity of radio control for model boats helped to increase the number considerably—at the present time there are 105 paid-up clubs

*In the early '30's, speeds were getting too high for safety in straight runs, so boats were tethered. Betty, of 1933, was one of the first famous 'pole boats' and has been restored by Mr. and Mrs. F. Cockman of Victoria Club.*



## EXHIBITION HANDBOOK AND GUIDE

*Two more pre-war "kipper box" hydroplanes are Bulrush 8 and Miss Swindon 2, both recently restored by M.P.B.A. general secretary Gerry Colbeck. These vintage craft now run in special regatta events.*

representing a membership around 2,000 (actually affiliated).

The Competition Rules now cover the following types of craft: Free-running, Hydroplanes, and Radio Control, with, of course, many sub-divisions. The regatta season lasts from April to October and the fixture list for 1973 shows no less than 122 events to be held under the auspices of the M.P.B.A. Some of these regattas are promoted directly by the Association and clubs may hold more than one regatta each year—this accounts for the large total.

International regattas have always been well supported and in recent years large contingents have represented Great Britain in France, Bulgaria, Belgium, and in 1973 Czechoslovakia on the occasion of the European Championships held bi-annually. In 1975 it is the turn of the M.P.B.A. and we are hoping that teams from 20 different countries will compete.

The Association has been very fortunate in having dedicated officers—all honorary appointments—who are not only prepared to serve but to continue for long periods and it seems probable that this continuity has assisted greatly, not only in the growth of membership, but also in the stability and status of the organisation. For some years past the Executive Officers have been reinforced by the Northern and Midland Area Committees who have taken over responsibility for the organisation of M.P.B.A. events in these parts of the country.

Although the early minutes of the M.P.B.A. were lost due to enemy action in the last war, the following list of officers filling certain positions is thought to be correct:—

### President:

First appointment 1925 — Percival Marshall.

1946 — E. W. Vanner.

1956 — E. T. Westbury.

1972 — Frank Bradbury.

### Chairman:

1924 — F. J. Pierson

1929 — N. Godfrey

1933 — J. Skingley

1948 — E. T. Westbury

1956 — P. Lambert

### Secretary:

1924 — J. G. Philpot

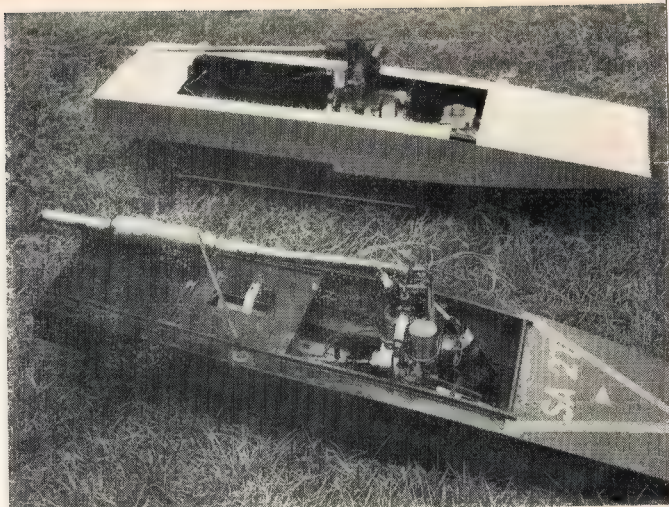
1928 — R. Jackson

1933 — E. T. Westbury

1948 — J. H. Benson

1958 — J. King

1965 — G. Colbeck



## THE VICTORIA MODEL STEAMBOAT CLUB

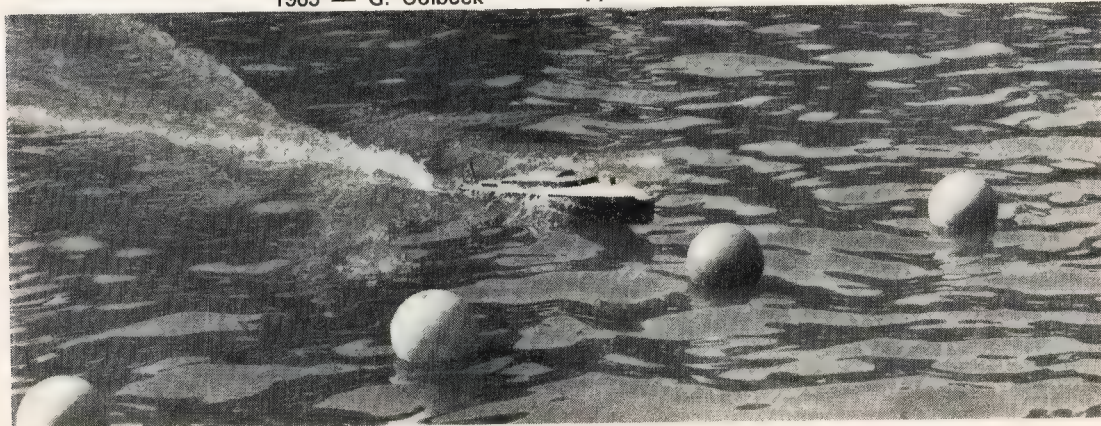
DURING 1974 The Victoria Model Steamboat Club will be celebrating its 70th anniversary which must be 70 of the most exciting and progressive years in model power boat history anywhere in the world. The Club will be displaying at the M.E. Exhibition models covering many of those years.

A number of steamboat modellers, otherwise unknown to each other, had been meeting frequently at Victoria Park Lake in East London, 'it stands to reason' declared a writer in the M.E. 'that you cannot alter the pitch of the propeller of a man's boat, borrow his last drop of benzoline (petrol) and use up all his matches without getting to know him', and so in July 1904 The Victoria Model Steamboat Club was formed.

Readers of the M.E. at the time were informed by the same writer that 'by 1907 the V.M.S.C. was performing on Saturday afternoons before an enormous public of small boys ("what's it go by, mister?"), and on Sunday mornings before a wall of charming young ladies—it always took longer to raise steam on Sunday mornings!'

1907 was also a very important year for every model engineer, for this was the year of the first Model Engineer Exhibition held at the Royal Horticultural Hall, London. The V.M.S.C. was one of the two societies exhibiting, the other of course being the Society of Model Engineers as it was then known. (Continued overleaf)

*One of the most famous petrol-engined boats ever, Leda III built in 1910 by the late Ted Vanner and skilfully rebuilt over four years by Lt. Cdr. Alwyn Greenhough. Now makes regular regatta appearances and ran at last year's Exhibition.*



Some of the Club's founder members became well known all over the world wherever the pages of the 'Model Engineer' were read, two such names which come readily to mind are those of James C. Crebbin who became President of the Club, better known to many model engineers as Uncle Jim Crebbin, the other was W. Blaney who later became Secretary of the Club and was better known to M.E. readers as the 'Carpenter's Mate'—his articles appeared in the magazine for many years and also in the face of much criticism, he did more than anyone to develop the model hydroplane.

With the growth of the hobby the V.M.S.C. became in 1924 one of the six founder member Clubs of the Model Power Boat Association of Great Britain which has now become the governing body for power boat clubs in this country, and the Club supplied some of the early officers.

The passage of time has added many famous names in model power boat history to the list of club members: Messrs. Heath, Turpin, Sherwood, J. Vines, Ted and Daisy Vanner, the Skingley and Innocent Brothers, S. H. Clifford, W. Morss, R. O. Porter and W. Everitt to name but a few.

The straight running qualities of J. Vines's 'Silver Jubilee' and Ted Vanner's 'Leda III' are legendary, the same could be said of Stan Clifford's 'Chatterbox' series of Flash-Steam hydroplanes, one of which set up a speed of 43.84 in 1925. Another exponent of the flash steamer is Arthur Cockman with a long line of 'lft' boats. Arthur is now President of the Club. In the i.c. engine field, the most famous of all the early hydroplanes must surely be the Innocent Brothers 30 c.c. boat 'Betty' which in her first season in 1933 established a world record for i.c. engines of 36.03 m.p.h. a record which she held until 1939 and today, some 41 years later, returns speeds of 28 m.p.h. plus—perhaps a little slow by modern standards but one wonders if the modern two-stroke motor will still be in working order 40 years hence.

What of the present time—again much has happened and the Club has in the past 20 years seen the growth of radio control from cumbersome unreliable equipment which often went 'off-tune' to the modern proportional sets where most of the faults are those of the operator.

One wonders what our 'scribe' of the early 1900s would have to say about another revolution that has taken place at the pondside—gone are the 'charming young ladies' who watched from the lakeside on Sunday mornings, for they have joined their male counterparts in the water with models of their own and not satisfied with that they are frequently to be found in the list of prize winners at the end of the day. It would be ungentlemanly not to mention but a few of these: Olive Cockman, Iris Phelps, Joyce Lara and Mary Reynolds are names that most male competitors have come to respect for their skill on the water.

Two traditions which the Club still carries on today—one is the large number of family groups who are all members—it is not uncommon to see two or three generations of one family in the water at the same time. The other notable tradition is the long service of many members and also some officers among which was the late Jack Skingley, Secretary for 25 years, and the present Hon. Secretary Norman Phelps who has been at the helm for close on 20 years.

## An Invitation from Alec Gee to Choose Your We

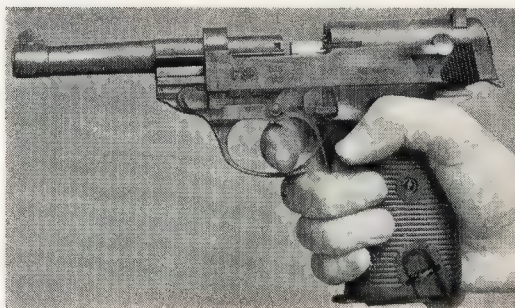
THERE CAN be few leisure hobbies as multi-faceted as military modelling; during the rapid growth of interest over the past few years, a staggering number of distinct sections within the overall, all-embracing 'military modelling' heading have made themselves apparent and each one would seem to be every bit as popular as the next. Take, for instance, wargamers whose new

Typical of the degree of authenticity currently available in replica guns, a beautiful nickel-plated Colt from Japan via Replica Models Limited.



Hard to believe that this most convincing Walther P38 is no more than an ingeniously contrived plastic kit by Japanese I. & S./Matz; has full action and can be loaded with dummy shells.

clubs spring up weekly and almost overnight, consider model soldier figure collectors, diorama enthusiasts, board battlegamers, devotees of the set-piece model, plastic kit fans, armoured fighting vehicle men in so many scales, collectors of all sorts of full size militaria from all periods and so on. Of all these, one of the newest and most controversial 'hobbies within a hobby' is the cult of the replica gun.



# apons



Smaller than you would think, this convincing model of the Sten Gun Mark 2 is  $2\frac{1}{2}$  times smaller than in real life. Made in Italy, it's imported, together with others in a series, by Model Time.

Although models of famous guns (and indeed, for some people, the real thing) have always enjoyed a degree of popularity, it has only been in recent years that the possibility of owning, handling and displaying a wide variety of thoroughly convincing models from all periods and theatres has been within the grasp of even young enthusiasts.

Apart from building one's own replicas, and a look around some of the models in this year's exhibition will show several fine examples of this more advanced modeller's art, the keen youngster or less-gifted enthusiast without perhaps the workshop facilities or knowledge to create his own can choose his favourite subjects from amongst an ever-increasing range of commercial items. Obviously, the man who arrives at gun collecting via the military modelling hobby (and this by no means accounts for all the sales of firearm models — a large percentage are sold purely for decoration while many go to wild west enthusiasts and historians) is likely to be one of three things; a collector of militaria in general and probably specialising in a particular period (e.g. World War 2 German equipment), a frustrated firearms collector who loves guns for their own sake, or the modeller for whom an accurate model firearm represents just another realistic subject in his collection. Whatever the case, a glimpse around the trade proves a mouth-watering exercise and there is undoubtedly plenty to keep members of our three groups of collectors satisfied for months and years to come.

Without question, and setting aside for a moment the scratch-building aspect of the hobby, the least expensive introduction to firearm collecting is through plas-

tic kits and, although the more experienced model maker may recoil in horror at the very words, there is much to be said for the products of Japan and the U.S.A. in the plastic construction kit field. One of the earliest range of such kits, still very much available in this country, is that produced by American Pyro (now re-named Lifelike) imported to this country by A. A. Hales Limited of Hinckley, Leicestershire. Including attractively moulded display racks, the models were produced along typical plastic kit lines requiring polystyrene cement fixing but they were accurate and, when skilfully painted to represent 'ageing' were only belied by their extremely light weight in comparison with the real weapon. Still available in this series are Derringer, Pepperbox, Blunderbuss and a most attractive matched pair of duelling pistols forming a double kit but the original range included a 40 in. long Western Saddle Gun, 56 in. long Moorish rifle, a 53 in. long Kentucky rifle and a 52 in. long Bavarian rifle plus Peacemaker, Western 44 and an Italian Miquelet.

The modern day counterpart of the 1:1 scale Pyro/Lifelike range of model firearms (as opposed to realistic cap-firing toys for youngsters) is that produced by Japanese L & S/ Matz, also imported by and available from A. A. Hales. This exciting series of full-size models comes surely as close to realism as any plastic kit has a right to do! The series includes a Luger P/08, Walther P.38, Smith and Wesson Combat Magnum (both long and snub barrelled) and the short version of the Walther P.38 which Matz call 'Secret Agent'. By typically ingenious plastic kit design, the models can be made to operate

and plastic dummy shells can be loaded into the magazine and passed through the loading - ejection cycle. Modern injection moulding techniques have made it possible for realistic metal textured surfaces to be provided in the kits and a nicely built collection of these would not only look impressive but, again with only the single drawback of unrealistic weight, would be thoroughly convincing. The mechanics of the Matz series of guns is provided by rubber bands and light springs and a degree of care is necessary in their construction which makes them a job rather than the more experienced plastic kit fan than the beginner; sliding areas and fits etc., require easing with file and emery cloth and it is even permissible to lightly oil sliding parts providing the lubricant is kept well out of the way of the major cement joints. It will be interesting to see what developments take place in the field of plastic firearms in the future; depending on what the collector wants (and many modellers are content to merely view and occasionally handle a replica) it is safe to predict that if, as it is hoped, a wider range of types becomes available in the future, the average enthusiast will be quite content to remain in plastic realms enjoying the construction and adding to his collection of new subjects as they become available. Plastic gun models can, without doubt, be made to look completely realistic but it would be a mistake to suggest that they would appeal widely to the knowledgeable gun collector as opposed to modeller. The prayers of the 'firearm collector' were answered in no uncertain terms back in 1969 with the arrival of Replica Models (U.K.) Limited and their imported Japanese models.

Apart from the factor of cost, the big difference between the imported Japanese items and plastic kits was that they were constructed of zinc alloy, came completely finished and assembled and were thoroughly realistic in not only looks but also from the weight aspect. Furthermore, on many of the types in the range it is possible to not only strip them down into components just like their real counterparts but magazines are removable, loading, cocking, and recoil mechanisms operate in the correct fashion and even realistic

dummy brass shells are available to cycle through the weapon's mechanism. At the present time no fewer than 34 different models are available from Replica Models Limited who are exclusively European and U.K. Distributors for the Japanese range. The cheapest is the tiny .25 Beretta Pocket Auto, beautifully detailed as are all the models and with correct stamped lettering, while the most pricey in the range is a magnificent Thompson Sub Machine Gun which retails at £61.88 and comes complete with vertical foregrip and detachable wooden stock; it carries a 20-round stick magazine and there is even a 50-round drum magazine available as an optional extra! Pretty well all the famous guns of the last war as well as police and detective models and American Civil War and Western subjects are contained within the Replica Models lists; there is the famous 1896 Mauser Military Auto (a favourite with Chinese troops and at one time carried by Winston Churchill), the MP40 Schmeisser sub-machine gun of German parachute unit fame with authentic folding stock and 32-round magazine and, of course, the Luger Parabellum in long barrelled (Artillery), 6 in. barrel (Navy) and standard German infantry patterns. For cowboy fans and fast-draw bedroom mirror gun-slicks there are equally convincing models for the Buntline Special (of Wyatt Earp fame), Colt 45, and Colt Peacemaker to name only a few plus the famous Winchester 73 saddle ring carbine in both round and octagonal barrel patterns together with a galaxy of realistic holsters and fast-draw rigs for these plus an equal range of accessories for

the military guns including Mauser shoulder stock/holster, and surplus issue Luger holsters.

It is difficult to over-emphasize the realism of these incredible replicas from Japan; gun experts (amongst whom number internationally famous western novel writer J. T. Edson) have confirmed their accuracy in balance and weight, wooden parts can be 'weathered in' by careful polishing and, being all metal, the guns 'age' and silver-up in a most realistic way. The barrels are constructed with special blocks of high tensile steel and are effectively blanked off with this material—presumably to remove the temptation for the adventurous of an experimental and highly dangerous conversion to working models . . . undeniably pricey, these Japanese models are still infinitely cheaper to collect and display than would be the real thing (always providing that some of the rarer types could still be found) and Replica Models Limited's claim of 30,000 models sold in the past three years gives some idea of the popularity the cult is at present enjoying.

Following hard on the heels of the 1:1 scale gun models come miniature replicas in a variety of types and scales; from Italy come 1:2.5 scale replicas of classic weapons like the Sten Gun Mk. 2, Japanese Nambu, Winchester 94, Remington Army 44 6-shot and Smith and Wesson Chief Special. The Sten, a beautiful little cast metal model, comes complete with shoulder strap, removable stick magazine and shoulder stock and, a mere 12" long overall, can even be loaded with an extraordinarily noisy cap which should widen its appeal to

younger collectors! It is quite possible, using these small scale weapons, to build up a sizeable collection at relatively modest cost for several interesting weapons which could all be neatly displayed on the wall of the model room or den in quite a small area.

Add to this wide availability of firearm models, the even greater selection of small scale kits for artillery pieces and cannons etc., in both wood and metal and it becomes apparent just how well catered for collectors are these days. Indeed, if one's interests are of an aviation nature it's even possible to buy 1/6th scale plastic kits for aircraft-carried machine guns of World War I (Parabellum, Spandau, Lewis, and Vickers) which look good when built and displayed as a collection. There are kits on the market for fine models from Pocher of Italy for the 1st World War Krupp 75 mm. field gun, an English Field piece of the 1800's, Naval guns and cannons, and even a 15th century cannon presented as a kit of brass, steel and wooden parts, while in this country firms like G.S.N. Replicas (two of whose models grace the cover of this year's handbook/guide) have available an attractive range of 1/16th scale models including historic British and U.S. cannons in brass and white metal.

Slightly smaller, Hinchliffe Models (also famous for their vast range of wargames figures and collectors' model soldiers) can offer, again in white metal, a range of Napoleonic and American Civil War artillery pieces plus the accessories to go with them and miniature soldier figures to depict servicing and loading them.

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## MODELS OF DISTINCTION



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## A Parade of the Troops

Marshalled by Alec Gee

The Military Modelling high point of 1973? Hinchliffe Models Limited's incredible Ray Lamb Original in metal kit form for a 13th century Japanese Commander (Taisho) must be one of the most adventurous and well detailed soldier figures ever manufactured.

The Military Modelling Show at the 1973 Aldershot Army Display back in June went a long way in acquainting members of the general public with what the hobby is all about. A 120' x 40' marquee jam-packed with models and exhibitors proved very popular amongst the quarter million people who visited the three-day Show.

EVERY YEAR at about this time it is our pleasant duty to sit for a moment and take stock of happenings of note in the Military Modelling field in the past 12 months — and exhibition time seems to come round quicker every year! To say that 1973 had been a good year for military modellers would be very much of an understatement; in every aspect, the 12 months since our last Model Engineer Exhibition catalogue report have been bumper ones with, not only a whole list of exciting developments from manufacturers and publishers etc., but also a healthy recruitment of newcomers to the hobby and the widening of fields of interest.

If proof of all this is needed then the following milestones within the hobby over the last year must surely speak for themselves; the whole theme is one of growth and expansion and this has applied to manufacturers of all types of merchandise right across the military modelling board. Take, for instance, the Yorkshire firm **Hinchliffe Models Limited**, to whom must surely go the prize for the year's most adventurous departure in the metal soldier figure market. By securing the services of one of Britain's top young sculptors, Ray Lamb, during the summer months of 1973, and gambling thousands of pounds, Hinchliffe undertook the manufacture as a kit of Ray's magnificent large scale figure for a Saburai Warrior 'Taisho' in full armour and with long assymetrical bow. Everyone

who saw Ray's painted master for the kit was thoroughly knocked out and it came as certainly no surprise to the Staff of *Military Modelling* magazine (but as an undoubted relief to Frank Hinchliffe!) when the finished kits started to sell well. Ray's breathtaking model is on display at this year's Exhibition and deserves close study.

Not quite so large, but equally beautiful and from the same skilled Lamb hands has come a brand new 75 mm. scale range of figures (foot at the moment) also by Hinchliffe; with the 'Taisho' they introduce a new dimension to model soldier figures and, along with the products of one or two other manufacturers, elevate the 'model soldier' to something much nearer an art form than it has hitherto been.

Offerings for the year from **Series 77**, are as much responsible for this development as the Lamb masterpieces; in 77 mm. scale we have seen an outstanding Stage 10 of figures from the English Civil War including Charles, Cromwell and various Royalist and Parliamentarian troops, Stage 11 with magnificent camel mounted figures and the promise for the future for busts of military personalities and famous figures and warriors from

history; with the new 90 mm. Men 'O' War subjects, large scale Minot and items by Rose Miniatures, the larger scale collector has been more than well looked after.

In the smaller sizes, the year has seen more than the usual flurry of activity in 20, 25, 30 and 54 scales, not to mention the 'super-tinies' which we will come to later on. Exciting developments here have been the introduction by **Miniature Figurines Limited** of 'Middle Earth' and 'space' ranges of wargamers' figures, the former from the book 'Lord of the Rings' and enjoying almost cult popularity at the moment with military modellers, the latter to tie in with recently published rules for inter-planetary wargames — something which was taken only half seriously 12 months ago. It is possible now to buy in 25 mm. scale elves, hobbits, wizards, trolls, dwarves, goblins and even ents for middle earth confrontations and even less likely, a giant insectoid from Cehan, Aquila death angel, robots and earthmen space figures for galactic encounters. If 1972 was the year in figure wargaming for the arrival of gladiatorial combat then 1973 has been the year of the space wargame and the cult of Tolkien . . .

Not only in the figure wargaming field have developments taken place; board wargames too have enjoyed their most popular 12 months to date with firms like **Avalon Hill** of America and **Simulations Publications** (also with headquarters in the U.S.A.) offering and selling more and more boxed games (looking more like Monopoly sets than battle

games) for almost every conceivable theatre, period and type of war. It is possible, for instance, to re-enact upon a griddled board with dice and counters, the Battle of Leipzig, Korea, Tactical warfare in the Dark Ages, as well as several Naval sea battle games and, more surprisingly, Richthofen's aerial war of 1917, Spitfires versus Messerschmitts and even tactical aerial combat in the 1970's involving Phantoms and the like! Indeed, aerial warfare itself represents a field of growing popularity amongst wargamers with more and more bits and pieces in the form of merchandise becoming available, like tiny scale models of aircraft from **Skytrex Limited** (they also can supply spacecraft for the interplanetary enthusiast) and even an almost accidental bonus for dog-fight enthusiasts from no less a firm than **Revell** the plastic kit people with their new 144th scale range of popular World War 2 aircraft types including Spitfire, Messerschmitt, Hurricane, Typhoon etc., just right for some forms of aerial wargames.

1973 was also the year when there became available in this country more American manufactured figure subjects for the collector than ever before with the arrival in the shops here of products by **Valiant**, **Imrie Risley**, **The Old Guard** (who, in fact, intend to set up a manufacturing operation in the U.K. in the not too distant future) to name but two. A whole new field of subjects has thus been opened up for the enthusiast with a plethora of exciting new types now available including items such as American Indians, figures from the American Revolutionary War and interesting personality figures (George Washington, Generals Meade and Jackson etc.) and even a figure in 54 mm. scale of arch Nazi madman, Heinrich Himmler. Still with metal cast subjects, as opposed to those in plastic, another 1973 milestone has been the production of a whole variety of super-small scale subjects which started during 1972 with 1/300th scale tanks and armour models but has, since then, included minute sol-

dier figures, gun emplacements etc. Firms like **Miniature Figurines Limited**, **Heroics**, **Kirk Miniatures**, **Leicester Micro Tanks**, **Peter Laing** and others have done their best with considerable success to promote this mini-world with wargamers benefiting in that they can now much more accurately portray whole divisions of troops and a realistic number of vehicles on the table top campaign where one figure really *does* stand for an individual man rather than, as has been the case with larger scale figures, one figure representing five or more individual units. Diorama fans too have benefited from micro figures, it being at last possible to create 'thumbnail' setpieces involving quite complicated activities on the smallest of bases.

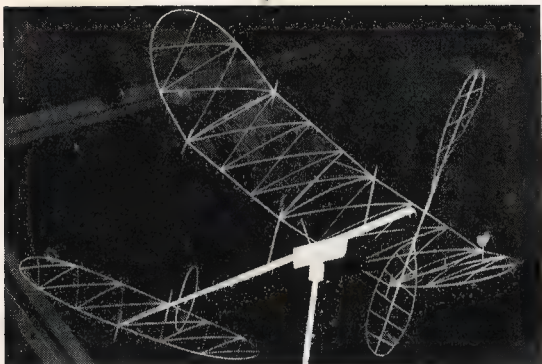
On the plastic figure front one of the major announcements of 1973 has been the arrival from **Historex** of a long-awaited series of Mameluke subjects in this company's inimitable style and great depth of detail; at the other end of the price range the prize for probably introducing more newcomers to military modelling ranks must surely go to **Airfix** who, with their unbelievably inexpensive 54 mm. scale plastic figure kits, have put very well detailed parts in the hands of even the youngest, 'pocket money bracket' modeller providing him with the cheapest possible basis for what, depending on his own individual skill, can be built up into a finished replica every bit as good as a more expensive subject. **Airfix's** most recent releases have been a Grenadier of the Imperial Guard foot figure at only 19p and a dashing Polish Lancer figure

mounted on yet another new horse from this company (the total now stands at three) for 24p; the possibilities for low-cost dioramas and set-pieces are limitless. On the same theme, the other company catering for youngsters and the man who prefers a low-cost starting point, **Helmet Figures** too have done their share over the last 12 months and their very latest 50p kit offerings have been for Napoleonic period French Hussars which come with enough parts for a variety of uniforms and regiments to be chosen and a long-awaited pack for British Infantrymen which also include many of the basic ingredients for much variety in detail. Armour enthusiasts too have had a busy 1973 with major new releases from most of the plastic kit manufacturers; highpoints of the year have been **Tamiya's** 1/35th scale German half-track, Russian GAZ Jeep and Matilda Tank while **Bandai** have increased their 1/48th scale range with more new subjects.

During 1973 **Hasegawa** launched a 1/72nd scale range of diorama parts, obviously angled at wargamers as well as collectors, and one of the more noticeable traits of the whole plastic A.F.V. kits scene has been the inclusion, more and more, of diorama parts to complement the models themselves thus providing enthusiasts with the basic material and figures to create a realistic setting for their tanks and guns; **Hasegawa**, **Bandai** and **Tamiya** with their recently released sandbags, buckets and oil drums etc., in 1/35th scale have been prominent names in this development.

Typical of the many wargames "conventions" and exhibitions throughout the year was this commemorative wargame re-enactment of the Battle of Leipzig in October; here **Airfix** magazine Editor, **Bruce Quarry** (on extreme corner of table) becomes immersed in strategy . . .





THERE CAN BE many frustrations for the model aircraft enthusiast, not the least being the unpredictable nature of the weather. He may spend weeks, if not months, completing his latest craft, often burning away the midnight oil in an effort to finish off his creation so that he can go and prove its potential on the flying field—when what happens? It rains. It blows. Maybe it even snows—and always, or so it seems, the conditions are most unfriendly at weekends after he has spent the remainder of the week gazing through the office windows at perfect conditions. . . .

One 'solution' of course is to remove the weather hazard by 'cheating' and flying the model indoors, not the front sitting room, but in large unrestricted areas such as gymnasiums, large halls, and in certain circumstances, R.A.F. hangars.

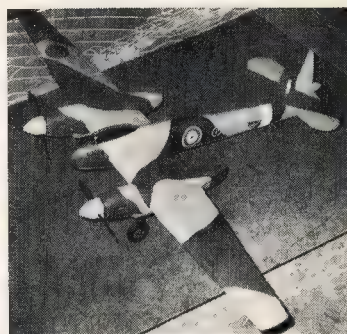
Naturally, special models are required to suit the accommodation available, and model aircraft internal combustion engines are not normally practical due to the noise, smell and mess. So how can the modeller 'hibernate' yet still practise his hobby?

Firstly, there is the electrically powered 'round-the-pole' type, such as will be demonstrated continually during the period of the *Model Engineer Exhibition*. In this instance, models are fitted with small electric motors—the same as are used by the model car racing enthusiasts—and are flown around a pylon on lines of jappaned copper wire, which carries the power to the models from two or three car batteries. Although the 'pilot' can vary the speed of the motor via a rheostat, the models are rather restricted as they may basically only be flown in a circular path, using 'throttle control' to make them fly higher or lower. The big advantage of this form of flying though is that it needs a rela-



## INDOOR FLYING MODELS

Above left, an international class model held on a special stand. Flying surfaces and propeller of this 1 gramme model are covered in microfilm—a material rather akin to cellophane, though more flexible.



At right, scale model of the Westland Welkin designed for round the pole flying, contains two small electric motors and is flown on lines up to 30 feet long. Was a good performer at this very Exhibition last year.

tively small space (a room 25 feet wide would suffice) and all manner of scale models, even four engined jobs, may be flown. Also, there are opportunities to fly up to four models at once—which is very exciting for the pilots!—and it is possible to perform loops if the lines are long enough, and the motors have sufficient power. Models can range from 10 to 50 inches in span—so there is quite a choice here. In fact, M.A.P. Ltd. produce a booklet thoroughly detailing this branch of the hobby—it is entitled 'Electric R.T.P. Flying', and is available from Sales Dept., Model & Allied Publications Ltd., P.O. Box 35, Bridge Street, Hemel Hempstead, Herts. HP1 1EE, price 50p.

Another rapidly growing sector is the rubber powered scale model—a category that is ideally suited to indoor flying as the models are small (rarely bigger than 20 in. span), easily transported, cheap to make and can produce very satisfying flights. Competitions are held for these models, the most popular being known as 'Peanut Scale', where the only regulations are that they must have a wing span of between 10 and 13 inches and achieve a flight of at least six seconds to qualify. They are then judged for accuracy to scale and realism of flight. There are many commercially available kits to choose from and flights of up to one minute can be achieved by the careful builder. Lightweight is the secret to success, so great care must be taken when colouring these models—paint weighs an awful lot if not applied expertly—often an airbrush is the best solution. With these models, a building at least the size of a gymnasium is

Beautifully made scale model of the Heinkel 46, built from drawings published in the *Aeromodeller* by Butch Hadland. This little rubber powered model can achieve flights of up to one minute when flown in a suitable sized hall. An airbrushed paint-scheme helps to keep the weight down.

needed—20 seconds may not seem long, but a model can go a fair way in that time!

As with all branches of aeromodelling, the experts demand a real challenge, and in their case the object is to achieve maximum possible duration from rubber powered craft.

International rules call for a model spanning no more than 65 cms., and weighing not less than one gramme, including the rubber motor! Here the answer is to build the largest model possible to this minimum weight—the lower the wing loading, the lower the rate of sink, and thus the best duration is achieved. Of course, the longer the length of specially prepared rubber motor one can fit will give the greatest height and duration as well *but* the models are so weak that the power of the motor could easily destroy the model when fully wound up!

The ideal weight is thus one gramme. Can you visualise that? The average cigarette weighs one gramme—this very page probably weighs about the same, yet these models span 65 cm. (25½ in.) and weigh the same including the rubber motor! How do the experts achieve these incredible figures? Simply by taking infinite care to use only the absolute minimum of materials necessary, and those of only just sufficient strength for the job.

The wings are covered in microfilm—this is a film which to all intents and purposes resembles a

'soap bubble'—and are often braced with .001 in. nichrome wire to prevent them from sagging. The fuselage is normally a tube rolled from sheet balsa as this is very stiff yet light, and the rubber motor is then suspended beneath this. Propellers are built up from strip balsa and covered in microfilm just like the wings. The completed models are so weak that when assembled the owner must walk past them very slowly—the draught of air caused by walking past them quickly could destroy the whole ship!

What sort of duration can be achieved? When flown in large areas (such as the old airship sheds at Cardington, venue of the 1972 World Championships) flights of over 35 minutes can be made—indeed the current world record is 45 min. 40 secs. achieved by K. H. Reike of West Germany.

Naturally there are few venues where such competitions can be held (in Rumania, meetings are often held in salt mines) as the ceiling height available restricts the performance considerably—Cardington is a massive 120 feet high—so rather more simple models are also made for flying in more restricted areas. These models may be microfilmed or even tissue covered according to the rules, and provide keen competition for the dedicated few, but duration is restricted to a more realistic (though equally hard to achieve) 10 minutes or so, depending on the size of the venue.

## FREE FLIGHT MODEL AIRCRAFT

*Continued from page 58*

miniature engines have further problems to solve, such as altering the thrust line and rudder trim to achieve a satisfactory compromise between powered flight and the ensuing glide.

The competition flier naturally has the greatest number of problems in obtaining a perfectly trimmed aircraft as he is interested solely in achieving the maximum possible performance. To do this, and to beat the 'opposition' who has to build models to the same general specifications, he often relies on involved 'gadgets' to assist him.

For example, those who fly power-duration models are restricted by the rules to an engine run of just 10 seconds. Obviously to achieve the greatest height he needs a really powerful motor—and these cost up to £35. In addition, it has been found that the glide portion of the flight requires a different state of trim to the near vertical climb under power, while of course the model must still be made to circle in order to keep it within sight. To achieve this specially-made clockwork timers are employed and the whole flight is virtually 'programmed' beforehand!

As the model is launched, the timer is switched on. Exactly 10 seconds later it activates a device to stop the engine, and at the same time the rudder is operated. A fraction of a second later the incidence of the tailplane is altered to provide optimum trim for minimum rate of sink, and then three minutes later the tailplane is suddenly severely tilted in order to bring the model safely back to earth—the latter operation being known as 'dethermalising'. In fact all competition aircraft, and indeed most sports models are fitted with such a device to prevent the model from flying out of sight—a time of three minutes normally being chosen,



Free Flight scale version of the B. E. 12b by Aeromodeller scale columnist Eric Coates shows the amount of realism that can be achieved in these models. This superb replica looks most realistic as it lifts off from the runway and gently flies downwind, circling round as she goes!

as for most contest purposes this is the maximum flight duration to score—anything more is not credited.

Not all modellers go to these lengths though, and indeed the power model is an extreme case. However, it is true to say that modern technology and materials have come to the fore in many respects. Today, for example, it is common to see competition models using glass fibre tubes for fuselages, cast aluminium streamlined engine mounts, turned metal nose cones, even turned aluminium fuselages for some rubber powered models, while carbon-fibre reinforced propellers and wings having a core of expanded polystyrene foam are no longer rare—a far cry from the early days of oiled silk and bamboo cane!

If free-flying model aircraft appeal to you why not take *AEROMODELLER* 20p monthly from Model Shops and Newsagents, or send 25p direct to the publishers M.A.P. Ltd.

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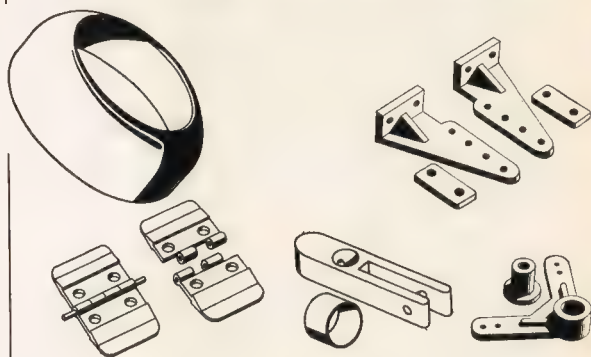
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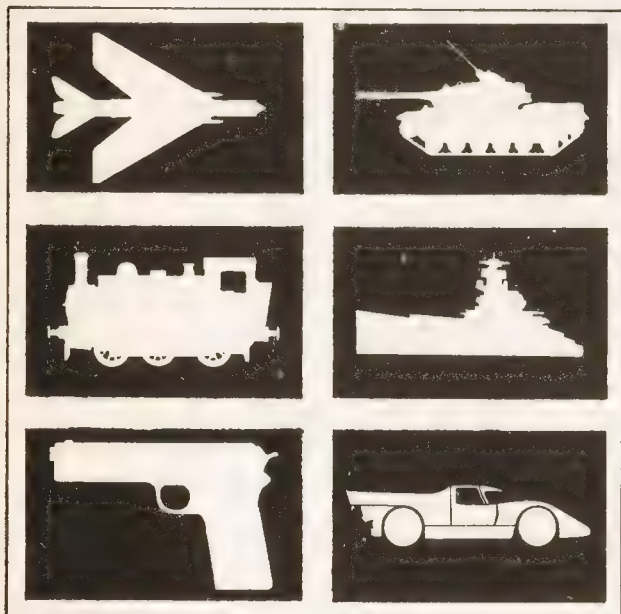
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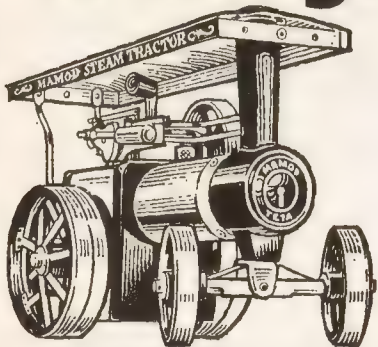
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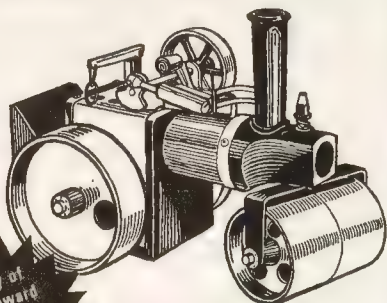
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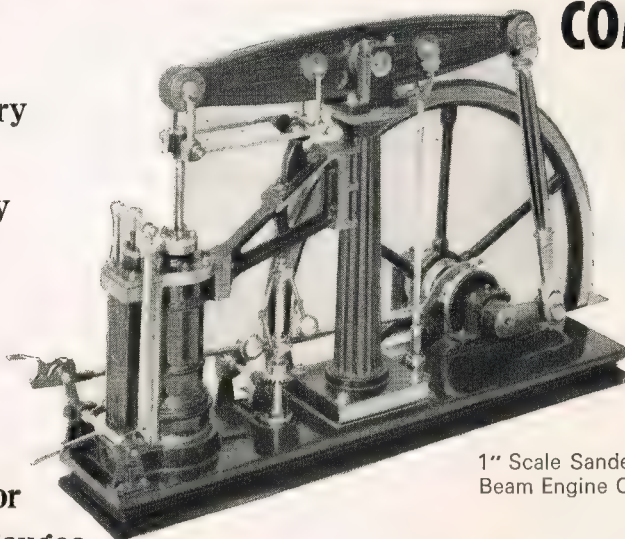
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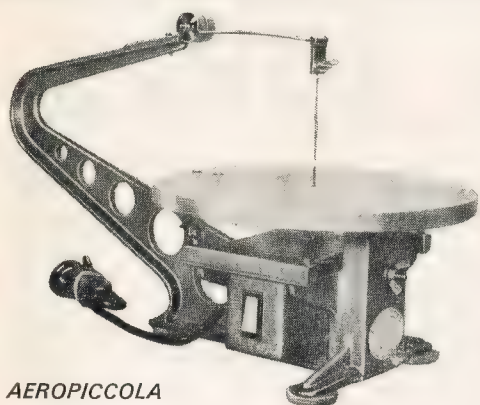
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We will be on show ourselves on the 3rd, 4th and 5th, and will be happy to answer questions on Rules, involve you in games, and—happily—sell you Rules books: and of course, our reference books on Armies of Macedonian and Punic Wars, Armies and Enemies of Imperial Rome, and Warfleets of Antiquity. The last has a special appeal to the modelmaker as well as the wargamer, as it includes scale drawings of 20 types of Ancient ship. Model manufacturers will be producing ships based on this book, and at least three firms have whole ranges of Ancient figures based directly on our Armies reference books.

There will also be Decline and Fall—a complete boxed game covering AD 375-450 for four players taking the parts of Roman, Goth, Vandal and Hun, each trying to achieve different objectives by a mixture of strategic movement, conflict, and diplomatic dealing, and double dealing. There is likely to be a game of Decline and Fall going on most of the time, and once you have seen it in action you are likely to be hooked on saving, or taking over, the Roman Empire. We will also hopefully have a trial set of our next game—SEASTRIKE—in action, with provision for ultra modern missiles, varied objectives, espionage—a boxed game, but adaptable for use with models.

If you cannot be there to see us in the early days, there will be a number of firms showing our books, and if you unfortunately don't make it at all, send an SAE for our price list which also gives an idea of our future productions.

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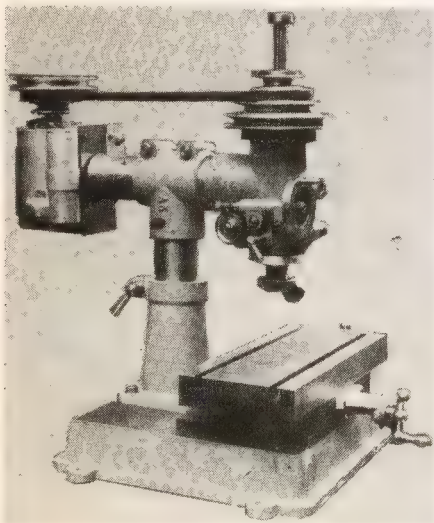
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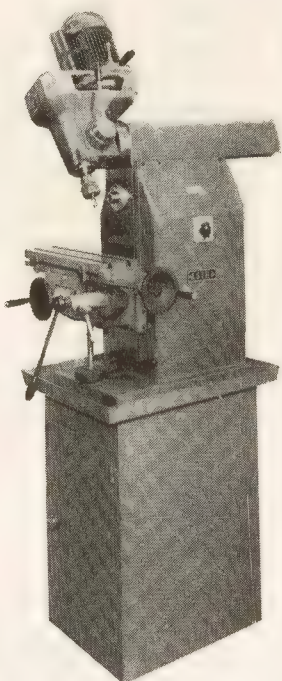
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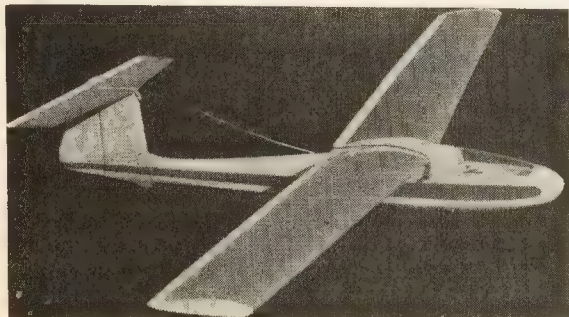
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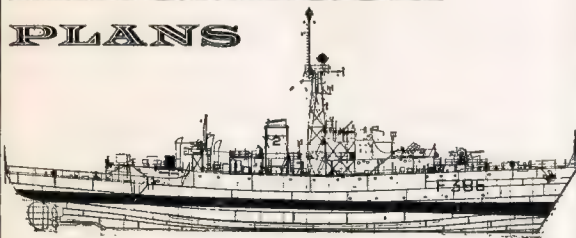
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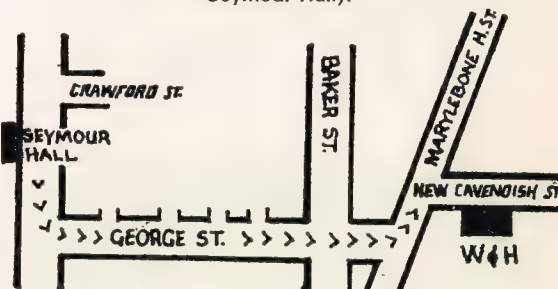
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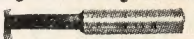
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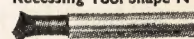
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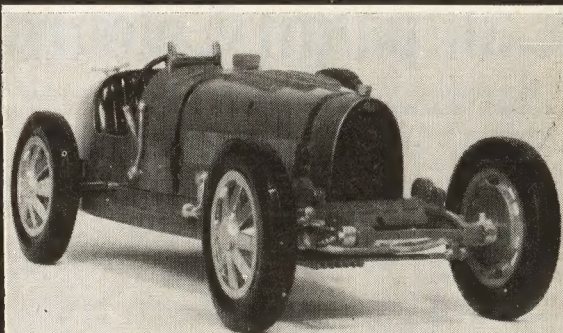
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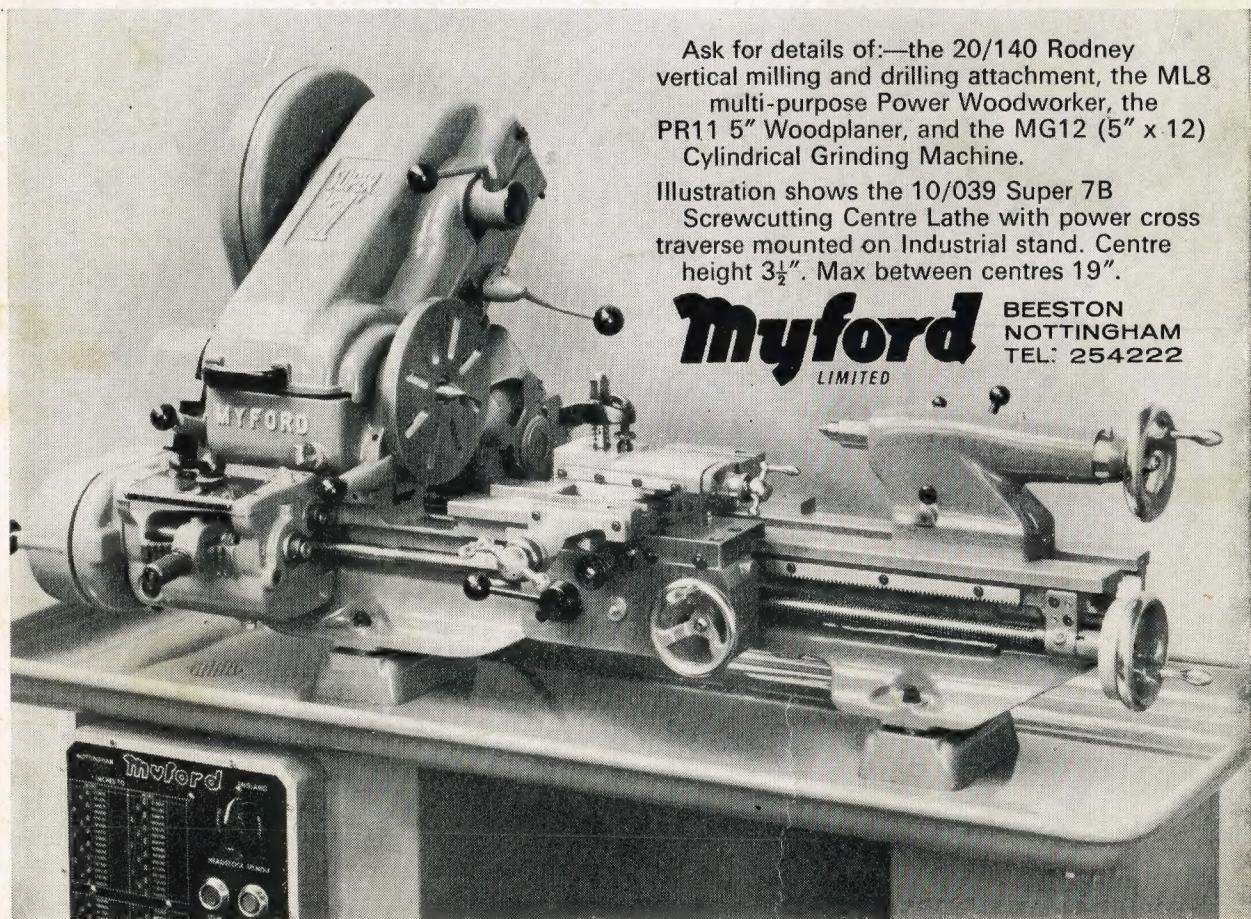
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